

Issue 663

**PS**

February  
2008

**THE  
PREVENTIVE  
MAINTENANCE  
MONTHLY**

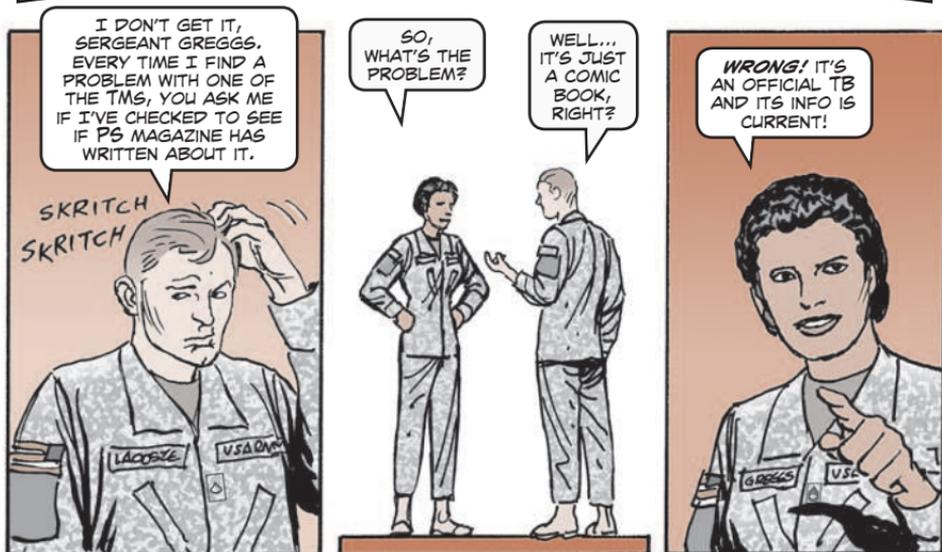
TB 43-PS-663

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**TO SEE THE LATEST ON COMBAT EYEWEAR, TURN TO PAGES 49-57**

# ACTIONABLE INFORMATION



Occasionally we hear of people who don't want to implement what's in PS Magazine. They look at PS as an unofficial source of information on par with SOLDIERS Magazine or installation newspapers.

Actually they couldn't be more wrong. PS Magazine is an official Army technical bulletin, TB-43-PS-Series. Everything printed in PS Magazine has been approved by the proponents of the information and is actionable. That means HQDA G-staff, AMC or its life cycle management commands, PMs or PEOs, or other subject matter experts have approved the info and agree that soldiers should implement it.

The same PS naysayers also won't implement instructions in a new Army pamphlet when it contradicts an older Army regulation.

You can elect to resist change, or you can choose to get in step with the ever more rapid pace of transformation.

AR 700-138 states that PS Magazine "is intended to enhance materiel readiness by identifying and emphasizing proper maintenance and supply procedures." So get in step.

WE'LL GIVE YOU THE RIGHT INFO MORE QUICKLY THAN OTHER OFFICIAL PUBLICATIONS CAN BE UPDATED. IT WILL BE **APPROVED** AND IT WILL BE **CURRENT**.



**PS****THE  
PREVENTIVE  
MAINTENANCE  
MONTHLY**

TB 43-PS-663, The Preventive Maintenance Monthly, is an official publication of the Department of the Army, providing information for all soldiers assigned to combat and combat support units and all soldiers with unit maintenance and supply duties. All information published has been reviewed and approved by the agency responsible for the equipment, publication or policy discussed. Application of the information is optional with the user. Masculine pronouns may refer to both genders.

**ISSUE 663 FEBRUARY 2008****COMBAT VEHICLES**

M1126 ICV Stryker Azimuth Travel Lock  
Stryker Trash Disposal  
M1A1, M1A2 SEP Tanks M1028 EFC Update  
M2A3/M3A3-Series Bradley Biocular Damage  
M577A3, M1068A3 CP Carrier APU Power  
M88A1 Recovery Vehicle Steering Linkage Lubing  
SP Howitzer, Ammo Carrier End Connectors  
M198 Towed Howitzer Tire Pressure

**WHEELED VEHICLES**

Tire Repair Program  
Vehicle Starter Burnout  
Tow Bar Checks and Preventive Measures  
HMMWV Electrical Switches Reminder  
M939/A1 5-ton Truck Wheel Studs  
M66 Ring Mount Covers

**SMALL ARMS**

Bradley M242 Receiver Removal  
M249 Machine Gun Charging Handle Clearing  
MK19 Machine Gun Rack Padlock  
MK19 Machine Gun Mounting Slots  
M16-Series Rifle, M4/M4A1 Carbine Plastic Ammo  
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You are invited to send PS your ideas for improving maintenance procedures, questions on maintenance and supply problems and questions or comments on material published in PS.

Just write to:

**MSG Half-Mast**

**PS, the Preventive Maintenance Monthly**

**USAMC LOGSA (AMXLS-AM)**

**5307 Sparkman Circle**

**Redstone Arsenal, AL 35898**

Or e-mail to:

**logsa.psmag@conus.army.mil** or

**half.mast@us.army.mil**

Internet address:

**<https://www.logsa.army.mil/psmag/pshome.html>**

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M1126 ICV  
Stryker...

# Remember to Unlock the Lock

...AND  
HERE'S MY  
ESTIMATE.



HOLY  
COW!!



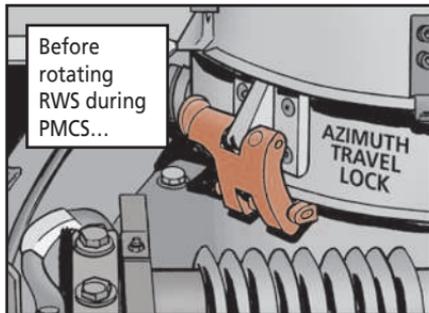
ALL THIS  
BECAUSE WE  
**FORGOT** TO  
DISENGAGE  
THE AZIMUTH  
TRAVEL LOCK  
ON OUR RWS!?:



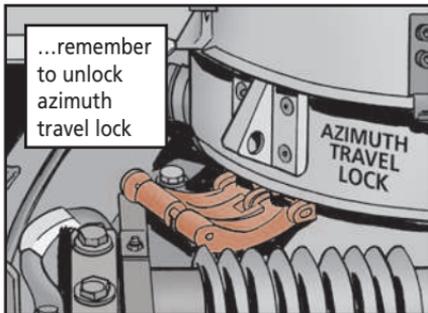
**Y**ou don't expect to cause damage to your M1126 ICV Stryker during PMCS, but it can happen!

PMCS requires you to check the inhibit zones on the remote weapons system (RWS) followed by combat override to check full rotation. But, did you remember to disengage the azimuth travel lock first?

Before  
rotating  
RWS during  
PMCS...



...remember  
to unlock  
azimuth  
travel lock



If you didn't, the lock snaps and you have to replace the entire mainframe assembly, NSN 2510-25-150-7443, at a cost of nearly \$97,000!

So, write yourself a note, tie a string around your finger...whatever it takes. Just make sure you remember to unlock the azimuth lock!

Stryker...

# It's in Your Best Interest

WHAT AM I GONNA DO WITH ALL THIS TRASH?!

I DON'T CARE... AS LONG AS YOU KEEP IT OFF MY FLOOR!



**W**hen you're in the field, finding the right place to discard trash, bottles, MRE pouches, soda cans, cigarette butts and other junk is one of the last things on your mind. So most Stryker drivers just toss it on the floor.

That not only makes you look like a slob, but it can also cause equipment damage and even threaten your safety!

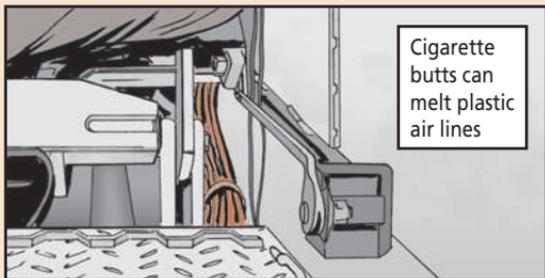
Some of the trash ends up under the driver's seat and keeps it from lowering properly. Forcing it will just damage the seat adjustment mechanism.

The trash can also get wedged under the steering drag links and jam them. You don't want to be moving down the road when the steering jams!

TOSSING CIGARETTE BUTTS ON THE FLOOR IS A **FIRE HAZARD**, ESPECIALLY IF THERE'S A LOT OF PAPER TRASH ALREADY THERE.

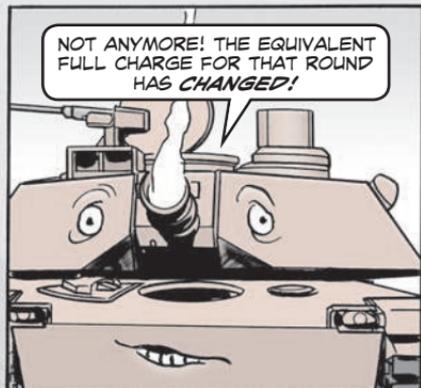
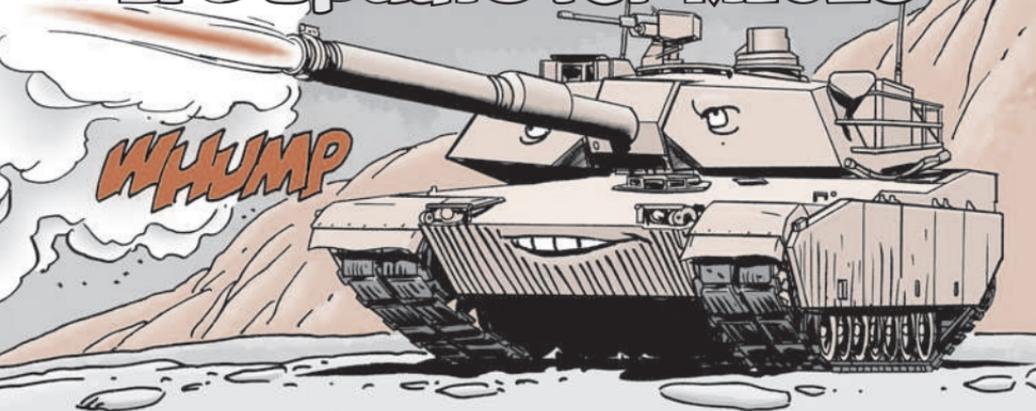


Even worse, the butts can melt the plastic air lines that run alongside the driver's seat. Loss of air pressure could mean no brakes!



So, when you go to the field, take along some plastic trash bags. That keeps the trash out of the way and makes it easier to clean up when the mission is over. You might say cleanliness is in your best interest.

# EFC Update for M1028



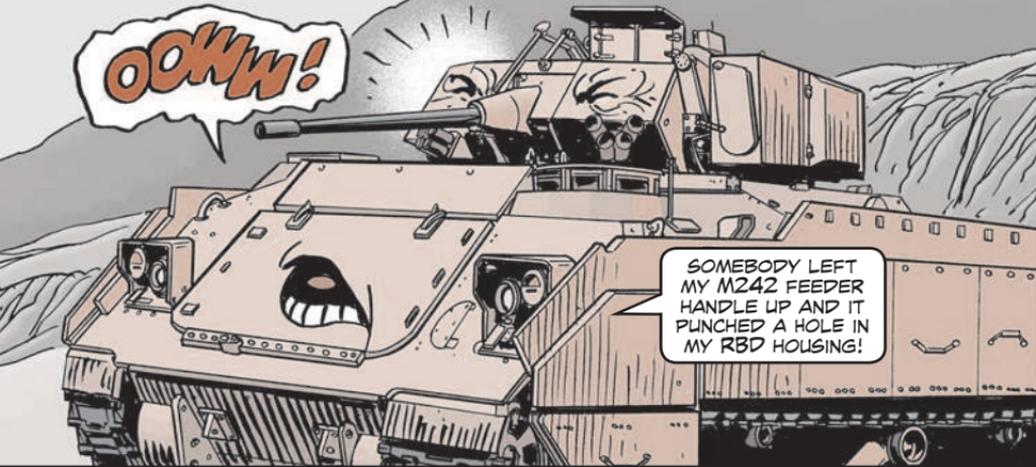
Grewmen, there's been a change to the equivalent full charge (EFC) count for the M1028 canister round in your M1A1 and M1A2 SEP tanks.

Originally, the M1028 was given an EFC of 2. And that's how it's listed in App B of TM 9-1000-202-14. An EFC rating of 2 is also shown on Pages 5-2 and 5-7 of TM 9-2350-264-10-2 (Mar 03 w/Ch 2) and TM 9-2350-388-10-2 (Feb 01 w/Ch 6).

After further testing, it was decided that the EFC should be 1. That new, lower EFC count allows for twice as many M1028 rounds to be fired before the gun tube must be turned in.

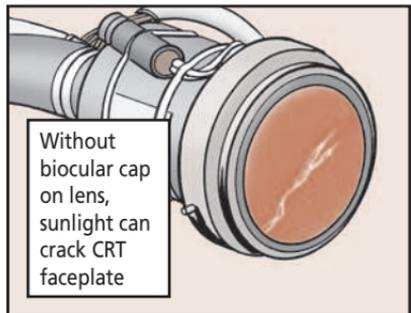
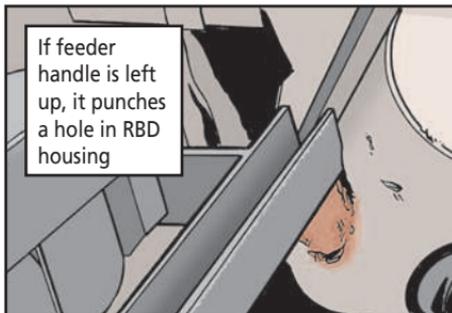
So make a note in each of the TMs until they're updated. Then, remember this change when you update your electronic DA Form 2408-4, *Weapons Record Data Sheet*. However, the M829A3 round still has an EFC of 2.

# PREVENT REMOTE BIOCULAR DISPLAY DAMAGE



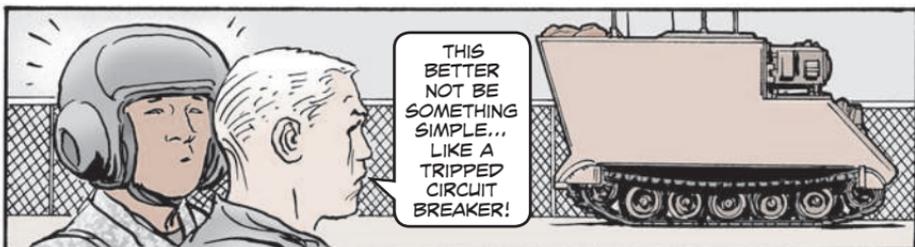
**B**radley remote biocular displays (RBD) are taking a beating because crews forget two rules:

**Keep the M242 gun's feeder handle lowered in the locked position.** If the handle is left up in the unlocked position, when the M242 is depressed in the power mode, its rear end can hit the RBD hard enough to punch a hole in its housing. Any time the M242 is installed, its feeder handle should be locked down.



**Keep the biocular lens cap on the lens when you're not operating it.** Without the cap, sunlight gets in the biocular lens and is magnified and focused on the CRT faceplate. The resulting heat cracks the faceplate.

# Breaker Can Trip You Up

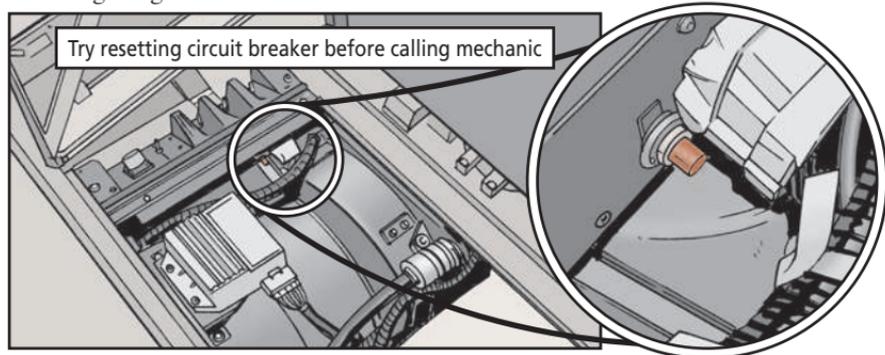


If the 5-KW generator on your command post carrier suddenly shuts down and won't restart, don't go running to your mechanic to complain.

You'll look kinda' foolish if the problem turns out to be nothing more than a tripped breaker.

A power surge from the carrier will sometimes trip the DC circuit breaker under the generator's control panel. When that happens, the generator is down for the count until you reset the breaker.

So, before you drag over that mechanic, try resetting the circuit breaker and restarting the generator.



# A LITTLE LUBE'LL DO IT



**M**echanics, a little battery acid in the wrong place will damage more than the batteries. You have to worry about what's **under** the batteries, too.

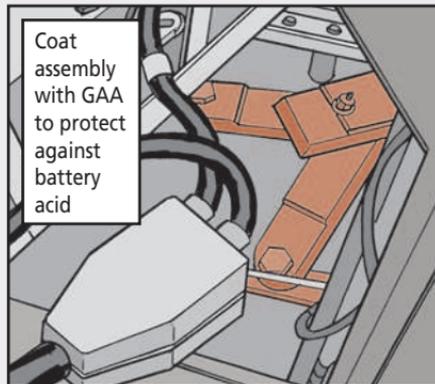
In the case of your M88A1 recovery vehicle, that's the steering linkage bell crank assembly.

The assembly is to the side and below the battery box, so any battery leakage usually ends up on it, too. If it's not lubed regularly, the resulting corrosion makes the rods brittle. Eventually, they break.

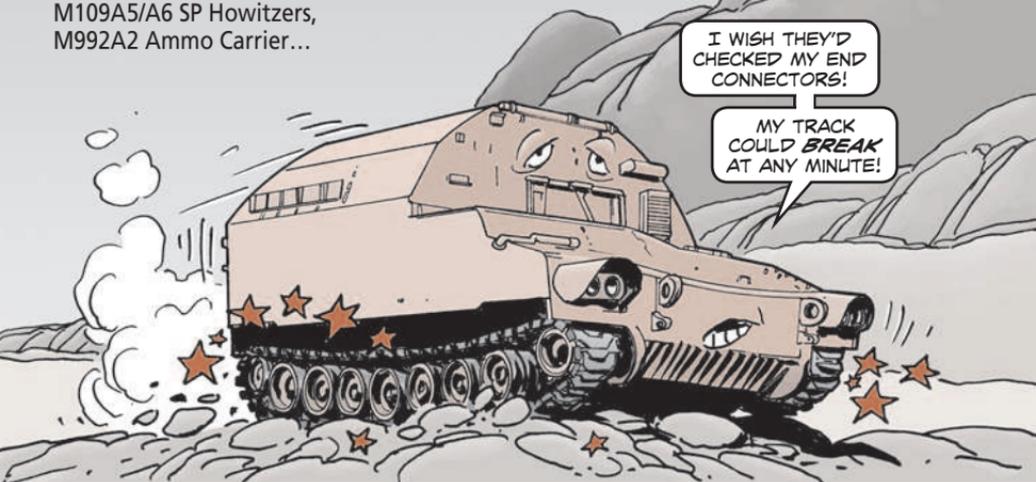
So, before you lube the steering linkage bell crank assembly quarterly with GAA, wipe off any corrosion you find carefully with a rag. If the corrosion is heavy, use a solution of water and baking soda. Wear rubber gloves and safety glasses to protect your hands and eyes.

Next, put a light coat of GAA on the outside of the assembly, then use your grease gun to lube normally. The GAA helps protect the assembly from battery corrosion until it's time to lube again.

AND CHECK THE BATTERY BOX AND ITS CONTENTS FOR CORROSION PROBLEMS, TOO.



M109A5/A6 SP Howitzers,  
M992A2 Ammo Carrier...



## PREVENT END CONNECTOR PROBLEMS

**M**echanics, the T-154 track used on howitzers and ammo carriers has a clamp style end connector that relies on a specific torque to apply the proper clamp load to the track pins. This clamp load is what keeps the end connector in place. Without it, the track can literally come apart.

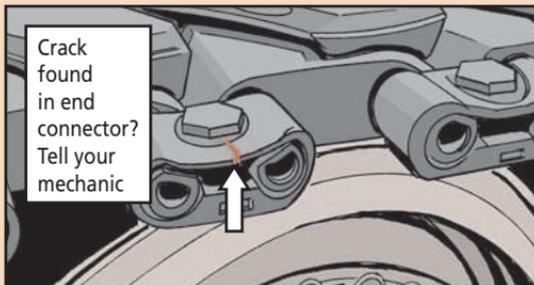
Don't think more is better, though. Applying too much torque to the end connector bolt will overstress the bolt and the end connector. That leads to stress cracks which can cause the end connector to fail and lead to a broken or thrown track.

The end connector bolts are wet-torque items, so apply a lubricant to the threads before torquing. With the end connectors at the 12 o'clock position over the idler wheel, make sure the bolts are torqued to 380-420 lb-ft and you should have no problems with them breaking or coming loose.

### Eyes Open, Crewmen!

You need to do your part during PMCS, crewmen. Look closely at each end connector for a loose bolt or cracks around the bolt head. Notify your mechanic if you find any.

And don't forget to check the inside end connectors. They can loosen and crack just as easily as the outside ones.



# BLOWUP OVER A BLOWOUT



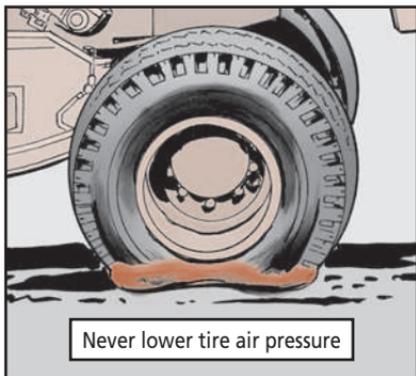
**I**s there anything that'll make you blow your top faster than a tire blowout on your M198 towed howitzer during maneuvers? Don't blow up at the tires, though. It may not be their fault.

Improper tire inflation and unsafe towing speeds are the main cause of tire damage on the M198.

**Never**—even during cross-country towing—lower the tires' air pressure. The lower the pressure, the hotter the tires get. That causes tread separation and fatigue breaks in the body cords.

While cornering, the wheel rims on under-inflated tires are forced outward. That puts a lot of pressure on the sidewall and could cause the tire to blow or come off the wheel.

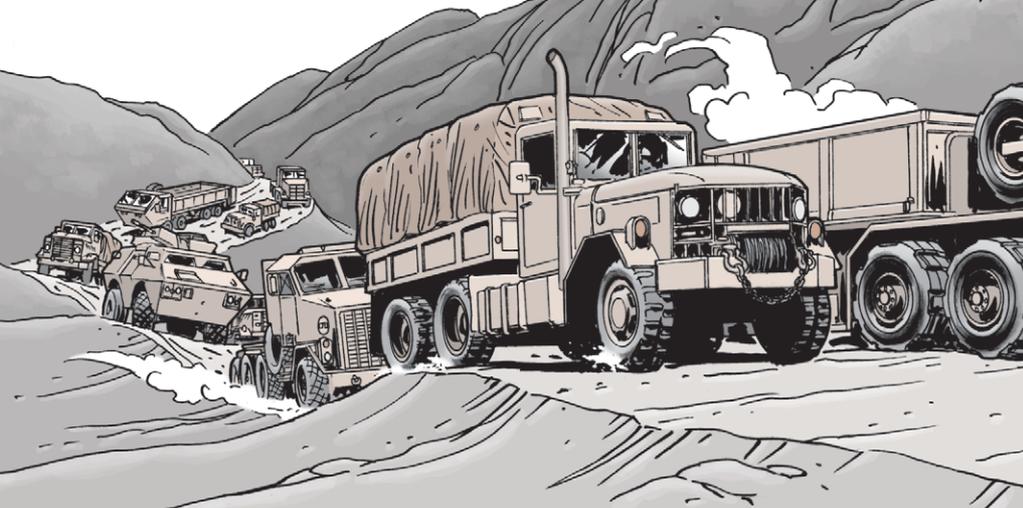
Lessen the chance of these problems by keeping your tires properly inflated. The correct pressure to use for cold inflation on radial tires, NSN 2610-01-281-0675, is 120 psi.



The maximum highway towing speed for your howitzer is 45 mph. Go any faster and tire temperature rises dramatically, permanently damaging the tire cord.

Never go faster than 30 mph on secondary roads or 15 mph cross-country. Since the howitzer does not have a suspension system, excessive speed causes the tires to bottom out. That damages the rims and results in handling problems.

# Change Is in the Air for Tire Repair



Dear Half-Mast,

Last year we started promoting awareness and use of the AMC tire and wheel repair program (TARP) (instead of unit repair and replacement of those tires). TARP supports modularity and the emerging two-level maintenance (TLM) doctrine of field and sustainment maintenance.

Under TLM doctrine, assigned tactical wheeled vehicle operators will be responsible for maintaining correct tire pressure, checking and reporting unusual tire wear, and removing and replacing a flat or worn-out tire with the spare tire and wheel assembly.

Also, as current unit and DS maintenance personnel transition to field maintenance, they get out of the tire repair and replacement business. This means they won't be able to dismount and repair flat and worn tires.

Appendix T of AE Supplement 1 to AR 750-1, *Ground Support Equipment Tire Maintenance Training*, provides updated information about tire maintenance and training. This is mandatory for users in Europe and contains good information for others.

It's available online:

[https://aepubs.army.mil/pdfpubs/AR750-1-S1\\_999402.pdf](https://aepubs.army.mil/pdfpubs/AR750-1-S1_999402.pdf)

Would you tell your readers about this and provide info on TARPs so units can get on the bandwagon?

Matt Caputo  
HQ, USAEUR/7A, G4

Dear Mr. Caputo,  
Can do!

We wrote about the AMC TARPs in SWA on pages 10-11 of PS 646 (Sep 06). You can eyeball that article online using this link:

<https://www.logsa.army.mil/psmag/archives/PS2006/646/646-10-11.pdf>

There are currently about 55 NSNs for common, high-density tactical wheeled vehicles in the TARP. Here's the list, which is updated as additional tire and wheel assembly NSNs are announced:

Vehicle	Tire and Wheel Assembly NSN
HMMWV radial/M1101 trailer	2530-01-493-5859
HMMWV/M1101 trailer (Michelin)	2530-01-541-6816
M977 HEMTT without CTIS	2530-01-477-1660
M1117 armored security vehicle (ASV)	2530-01-478-0593
M1074/M1075 PLS, M1070 HET trucks with CTIS	2530-01-506-2715
M1000 HET trailer	2530-01-506-5762
M747 semitrailer with combination IV radial tire	2530-01-506-5921
M989 HEMAT	2530-01-506-7325
M989A1 HEMAT	2530-01-506-7324
4K rough terrain forklift (JI Case M4K nondirectional)	2530-01-506-6873
10K rough terrain forklift (ATLAS-right side)	2530-01-446-1035
10K rough terrain forklift (ATLAS-left side)	2530-01-514-8514
10K rough terrain forklift (M10A-right side)	2530-01-506-6884
10K rough terrain forklift (M10A-left side)	2530-01-527-9583
50K RTCH (Caterpillar)	2530-01-506-6885
50K RTCH (Kalmar)	2610-01-484-1419
M35A2 truck; M105A2/M149A2/M200A1, and M332 trailers; M313, M373A2, and M750 semitrailers	2530-01-506-5910
M35A3 truck	2530-01-506-5915
M915A2 truck (front)	2530-01-506-4125
M915A4/A2 truck (rear)	2530-01-506-4129
M915A2 truck (up-armor)	2530-01-537-8294
M915A3 truck	2530-01-506-4128
M915A3 truck (up-armor)	2530-01-537-8297
M915A4 truck (up-armor)	2530-01-537-8299
M917A1 truck (front)	2530-01-506-4131
M917A1 truck (rear)	2530-01-506-4132

Vehicle	Tire and Wheel Assembly NSN 2530-01-
M916A1/M916A2 trucks (rear)	506-4133
M920 truck	506-4136
M939 truck with anti-lock braking system (ABS)	506-8319
M818/M926/M939 FOV trucks without ABS	506-7244
M923A1/M939A1/M939A2 trucks	506-7243
FMTV M1083/M1084/M1085 trucks	500-4619
FMTV trailer	542-7405
M129A4 semitrailer	514-7903
M172A1 semitrailer	506-7650
M860A1 semitrailer (Patriot)	506-7315
M870 semitrailer	506-7646
M871A3 semitrailer	508-2786
M872 semitrailer	547-4136
M119A2 trailer (right side)	541-7001
M119A2 trailer (left side)	541-7004
M200A1 trailer	528-9461
M967A2/M969A3 semitrailer	527-4609
M1061A1 trailer	514-7909
M1062 trailer	506-7648
M1076 PLS trailer	500-4991
6K VR rough terrain fork lift (right side)	518-3656
6K VR rough terrain fork lift (left side)	518-3659
SEE (small emplacement excavator)	527-9584
Buffalo mine clearing vehicle (front)	535-9462
Buffalo mine clearing vehicle (rear)	535-9459
RG31 medium mine protected vehicle	541-5364
LAV	532-5635
M878A2 yard tractor	514-5105
130G grader (armored)	549-6588
IMHEE (right side)	543-8303
IMHEE (left side)	543-8304

*Your TACOM LAR can assist your unit with using the TARP and with on-site unit, DS, and GS tire inspection, maintenance, and classification training.*

*Half-Mast*



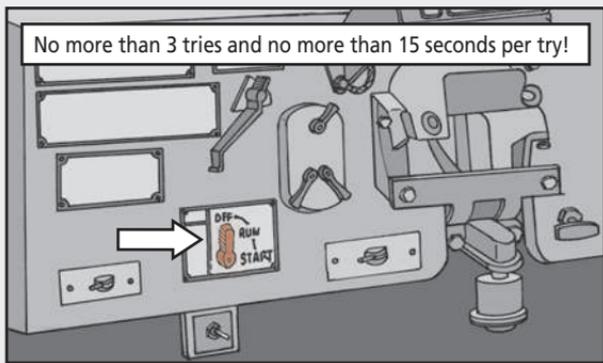
# Get Smarter on Your Starter

WHEN IT'S TIME  
TO MOVE OUT,  
YOU WANT YOUR  
VEHICLE TO  
START.

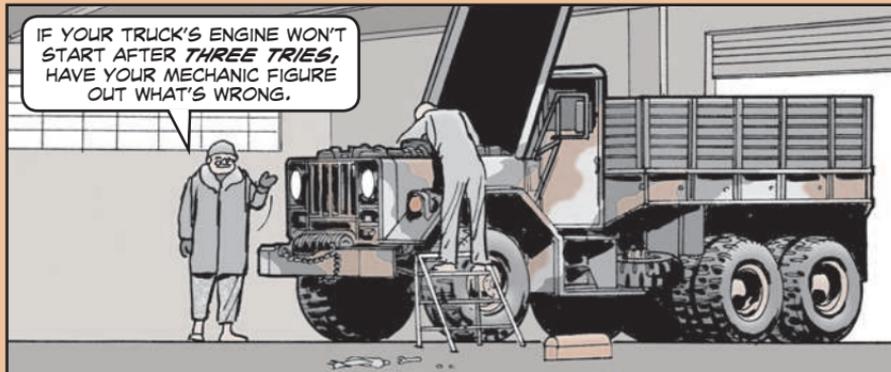
BUT IN COLD  
WEATHER,  
ESPECIALLY,  
VEHICLES END UP  
IN A MAINTENANCE  
BAY WAITING FOR  
STARTERS TO BE  
REPLACED.

That's because all it takes is operating the starter too long to burn out a good starter motor. So **don't** engage the starter for more than 15 seconds! And give the starter at least one minute to cool off before trying to start it again.

No more than 3 tries and no more than 15 seconds per try!

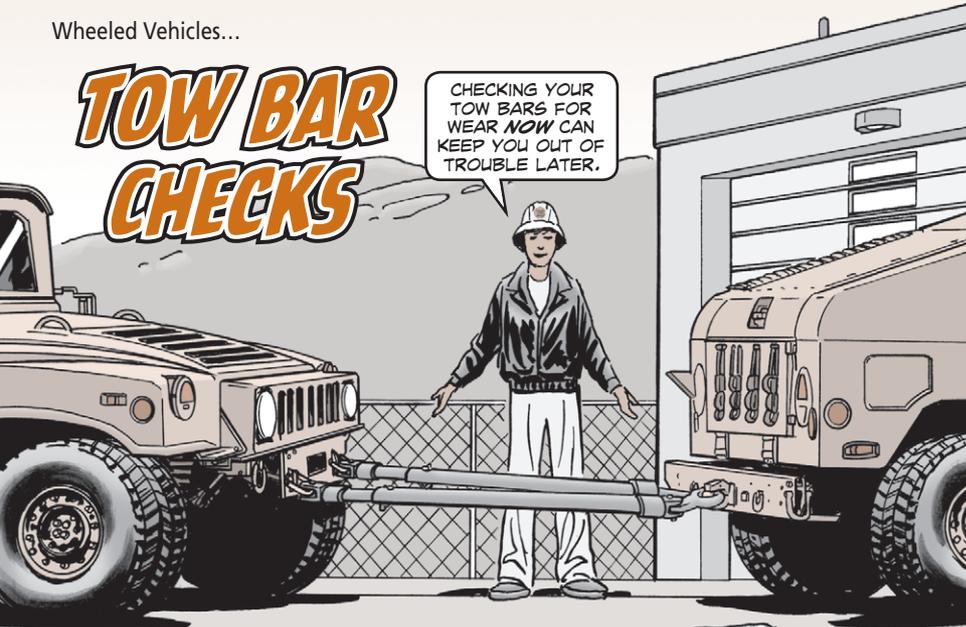


IF YOUR TRUCK'S ENGINE WON'T  
START AFTER **THREE TRIES**,  
HAVE YOUR MECHANIC FIGURE  
OUT WHAT'S WRONG.



# TOW BAR CHECKS

CHECKING YOUR TOW BARS FOR WEAR **NOW** CAN KEEP YOU OUT OF TROUBLE LATER.



WITH THE ARMY'S CURRENT OPTEMPO, TOW BARS GET USED MORE THAN EVER!

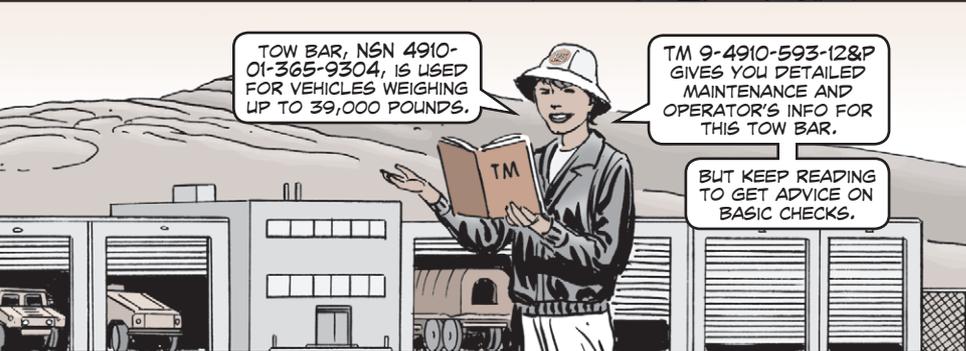
THAT'S WHY IT'S IMPORTANT TO CHECK THEM OUT FOR WEAR THAT CAN MAKE THEM UNSAFE.



TOW BAR, NSN 4910-01-365-9304, IS USED FOR VEHICLES WEIGHING UP TO 39,000 POUNDS.

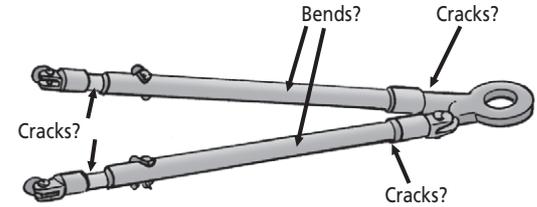
TM 9-4910-593-12&P GIVES YOU DETAILED MAINTENANCE AND OPERATOR'S INFO FOR THIS TOW BAR.

BUT KEEP READING TO GET ADVICE ON BASIC CHECKS.



## Basic Checks

Check tow bar for cracks or bends. Replace damaged components



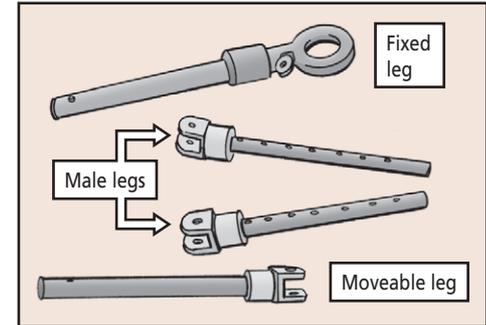
Check welded joints for cracks and for bent tow bar components. Replace bent or cracked components.

Some tow bars show their age through cracks and wallowing at the adjustment pin holes. You should:

- Look at all adjustment pin holes on the tow bar legs. If you spot any cracks at these holes, order the necessary replacement leg. Use this chart as a quick reference:

Item	Quantity	NSN 4710-01-371
Fixed leg	1	7294
Moveable leg	1	7293
Male leg	2	7292

- If there are no cracks, look for pin holes that are wallowed out. That means they're no longer round, but are oblong. Check the diameter of any odd-looking holes using calipers.



On the male legs, the largest acceptable hole diameter is  $25/32$  inch. On the fixed and moveable legs, the max diameter is  $51/64$  inch. Replace any leg that has holes larger than these diameters.

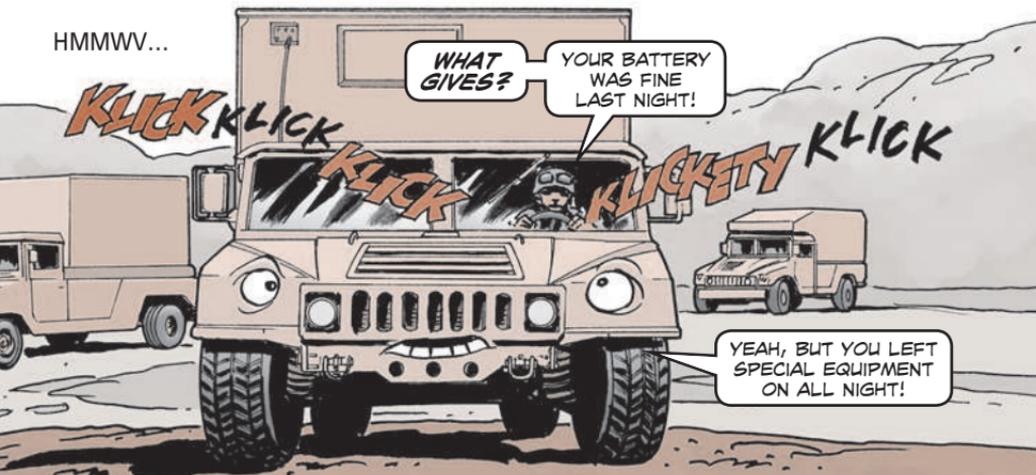
Legs that pass these inspections still need attention. Deburr the pin holes that need it using emery cloth or sandpaper. Clean the holes with a dry cloth and apply corrosion preventive compound, such as NSN 8030-00-837-6557 or NSN 8030-00-546-8637.

## Preventive Measures

Take preventive measures to make sure all tow bar components work, especially in unusual conditions. Remember the following:

- In dusty and sandy areas, remove dust and sand from tow bar components when not in use. If you don't, that could keep the tow bar from moving like it should.
- In cold weather, keep water and moisture out of the tow bar. Otherwise, ice may form and jam moving parts. Manually move the male leg through the entire range at intervals to keep it from freezing. And be sure to keep the tow bar inside when not in use.
- In hot and humid climates, wipe the tow bar dry when you're done with it so that moisture won't cause corrosion.

HMMWV...



## ARE THEY TURNED OFF?

"TURN OFF THE LIGHTS  
...TURN OFF THE TV ...  
TURN OFF THE RADIO!"

HOW MANY TIMES DID  
YOU HEAR THAT WHEN  
YOU WERE A KID?

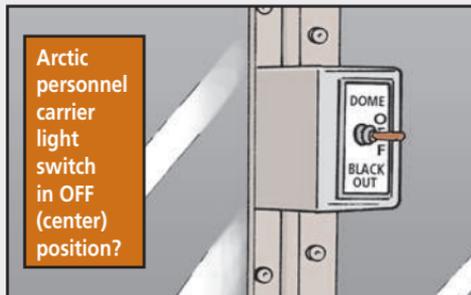


**W**ell, keep those thoughts in mind when it comes to your HMMWV. If your vehicle is fitted with special equipment—a rear-mounted radio, a commo shelter, an ambulance or an arctic personnel carrier—listen to this: Turning off the master switch on the dashboard does **not** turn off the battery power to the equipment in the back!

Make sure **all** electrical switches in the vehicle are off before you leave the truck. If you don't know where all of them are, have a medic or specialist show you what to look for.

You're doing this for your own benefit, because otherwise you'll be stuck slave starting if the batteries are too weak to start.

One switch that often gets left ON is the one for the rear overhead lights in the arctic personnel carrier. It has three positions. Only one—the middle position—turns the lights out when the rear door is closed.



Arctic  
personnel  
carrier  
light  
switch  
in OFF  
(center)  
position?



# Wheel Stud Stumper

Dear Half-Mast,

After eyeballing TM 9-2320-272-24P-1, I ordered front wheel studs for my M923. But, unfortunately, I got the wrong part. Then I placed another order, and the same thing happened.

I'm stumped! Which NSNs bring the correct part?

SSG T.Y.R.

Dear Sergeant T.Y.R.,

The wheel studs don't have to stump you anymore. Use NSN 5306-01-132-8274 to get the correct wheel stud for the right-side front wheel on M939/A1-series trucks. And use NSN 5307-01-132-8273 to get the correct wheel stud for the left-side front wheel. The wrong numbers are listed for Item 17 in Fig 293 of TM 9-2320-272-24P-1. So make a note until the TM is updated.

*Half-Mast*

Machine Guns...

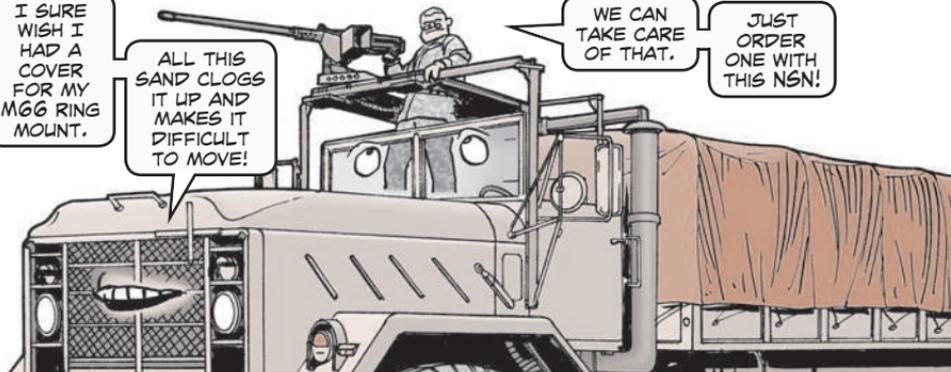
# Need an M66 Ring Mount Cover?

I SURE WISH I HAD A COVER FOR MY M66 RING MOUNT.

ALL THIS SAND CLOGS IT UP AND MAKES IT DIFFICULT TO MOVE!

WE CAN TAKE CARE OF THAT.

JUST ORDER ONE WITH THIS NSN!



Dear Half-Mast,

Is there a cover in the supply system for the M66 ring mount? It would really help us protect the M66 from sand and rain.

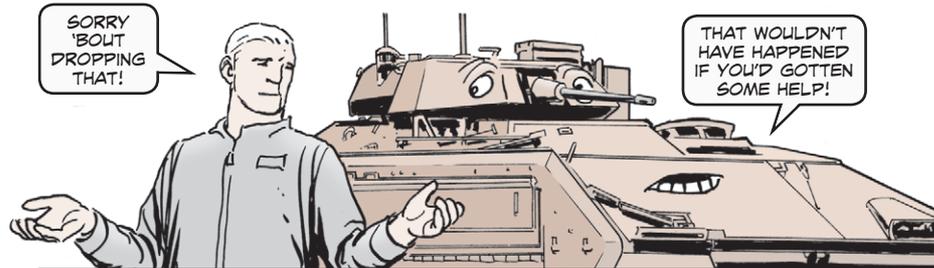
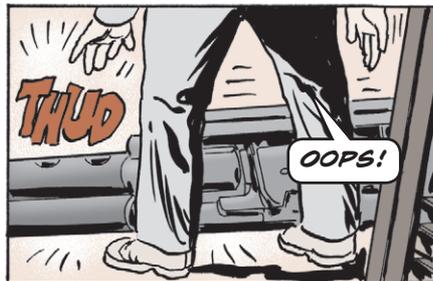
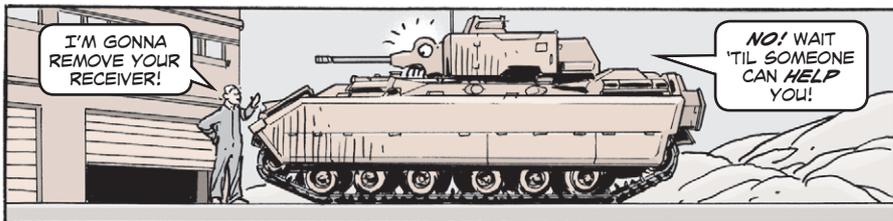
CPT W.H.

Dear Captain W.H.,

Certainly. Order the cover with NSN 1005-00-707-0725. It works for all M66 mounts, no matter what vehicle it's mounted on.

*Half-Mast*

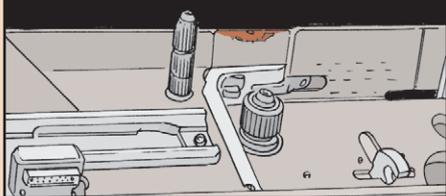
# No Damage M242 Removal



Dear Editor,

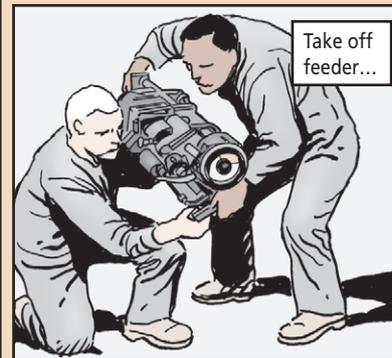
Here at the MATES at the Louisiana National Guard, we have seven M242 automatic gun receivers that have been damaged by careless handling when being removed from Bradleys. We're sure other Bradley units have the same problem. And since a damaged receiver means you have to replace a \$48,000 M242, it's an expensive problem.

Trying to remove M242 receiver by yourself results in bent receiver rails



You can save that expense by removing the receiver with *two* people doing it like this after you make sure the weapon is clear, remove the barrel, and put the manual safety handle to SAFE:

1) The commander takes off the feeder and hands it to the gunner, who steps out of the Bradley and places it on a clean, flat surface. Make sure to lock the feeder handle in the down position to avoid damaging the connector.



2) The commander unlocks the receiver and removes it from the trunnion. After it's clear of the trunnion, he turns it clockwise so it's at a 45-degree angle to hand it to the gunner.

3) The gunner gets down on one knee to take the hand-off. He puts one hand under the end of the receiver and the other hand under the middle of the receiver, while the commander holds the barrel support sleeve. (**Never hold the receiver by the motor. You can wrench it loose.**)



4) The gunner cradles the receiver to carry it out of the Bradley and lays it on a clean, flat surface on its left side so that the motor and solenoid won't be damaged.

This procedure saves receivers and saves your unit lots of money.

MSG Charles Woodham  
SFC Michael Barnett  
SSG John Doolittle  
MATES, LAARNG  
Ft Polk, LA

*Editor's note: Your receiver tip is received loud and clear. Thanks for helping Bradley crews avoid expensive damage to their M242s.*

# Half-Cocked Clearing

*STOP ME  
BEFORE I RUIN  
EVERYTHING!*



Dear Editor,

We're running into soldiers who have been told when clearing their M249 machine gun to pull back the charging handle and bolt just far enough to allow the safety to be depressed. Then they return the charging handle and bolt to the forward position. This is the wrong way to set the safety. Please tell soldiers the right way.

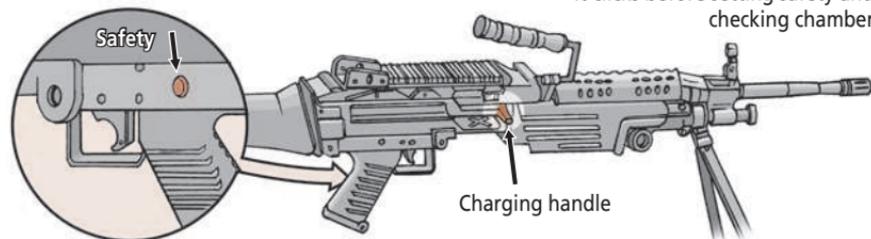
**Editor's note:** You bet. Soldiers should set the safety like it says on Page 2-16 in TM 9-1005-201-10:

SFC Rex Frazier  
98th Maint Co  
Iraq

“Pull the charging handle all the way to the rear until the bolt is locked back. Then push the charging handle all the way forward until you hear it click. Push the safety all the way to the right until the red band is not visible.”

*Now you can raise the feed tray cover and make sure there is no round in the chamber.*

Push charging handle forward until it clicks before setting safety and checking chamber

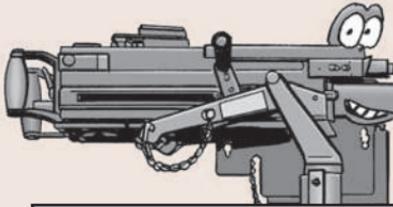


*Once you know the weapon is clear, lock the feed tray cover back in place. Take the M249 off SAFE, unlock the charging handle, pull the trigger, and ride the bolt forward with the charging handle. The safest way to carry the M249 is with the bolt forward. That way it can't accidentally fire.*

# HOW DO I LOCK RACK?

I'M GLAD YOU SHOWED UP.

THOSE OTHER PUNY PADLOCKS JUST COULDN'T DO THE JOB ON MY RACK.



Dear Half-Mast,

How do I lock the rack for the MK19 machine guns? The padlocks we use on the other small arms racks aren't long enough.

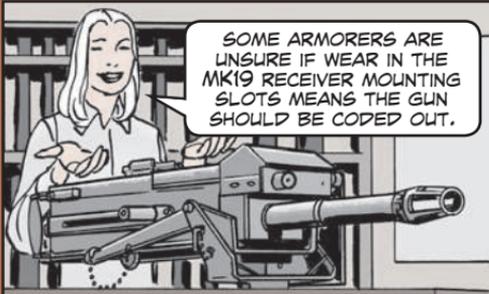
SFC D.W.

Dear Sergeant D.W.,

To lock the MK19's rack, NSN 1095-01-216-9295, use the padlock that comes with NSN 5340-01-408-8434. It's long enough to do the job.

*Half-Mast*

# WEAR OK IN MOUNTING SLOTS



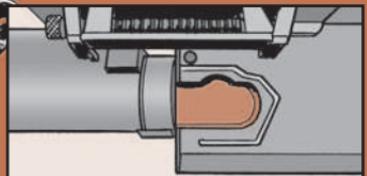
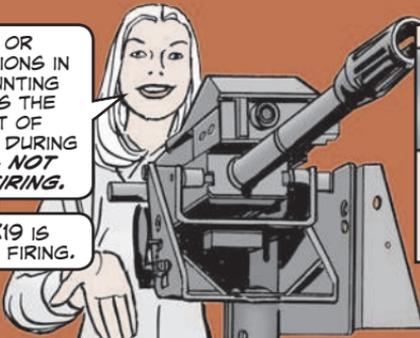
SOME ARMORERS ARE UNSURE IF WEAR IN THE MK19 RECEIVER MOUNTING SLOTS MEANS THE GUN SHOULD BE CODED OUT.



THE ANSWER IS **NO**.

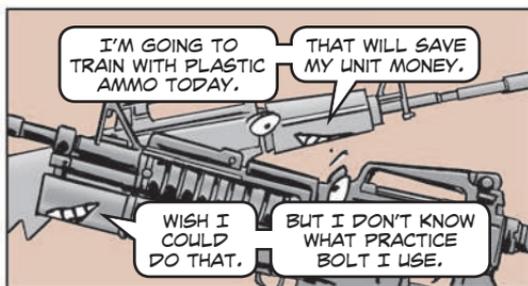
WEAR OR INDENTATIONS IN THE MOUNTING SLOTS IS THE RESULT OF VIBRATION DURING TRAVEL, **NOT FROM FIRING.**

THE MK19 IS SAFE FOR FIRING.



Wear in mounting slots is OK

## FIRING PLASTIC AMMO



Dear Half-Mast,

We fire the DODIC AO65 plastic ammo for training. We know you can use the M2 practice bolt, NSN 1005-01-184-4041, to fire plastic ammo with the M16 rifle, but what do we use to fire plastic ammo with the M4/M4A1 carbine? We can't find the answer in any of the TMs.

MAJ S.K.

Dear Major S.K.,

The M2 practice bolt works with the M4, although not as well as it does with the M16. You will have more malfunctions with the M4. But using the M2 with the M4 is safe and won't harm the weapon.

Half-Mast

## ZEROING WITH M68 SIGHT

Dear Half-Mast,

We are being told that when you remove the M68 close combat optic sight from the M16-series rifle or M4/M4A1 carbine for storage, you must re-zero the weapon when the M68 is reinstalled. Is this true?

CPT E.R.

Dear Captain E.R.,

No. As long as the same M68 is installed in the same slot on the M16 or M4, you don't need to re-zero the weapon. So when you remove the sight for storage, you need to make a note on which weapon it goes to and what slot it was installed in. Putting a different sight on or using a different slot means the weapon must be re-zeroed.

If you have questions about how to install the M68, see Page 22 of PS 638:

<https://www.logsa.army.mil/psmag/archives/PS2006/638/638-22.pdf>

Half-Mast

HEY, THEY'VE GOT THAT WRONG ON REMOVING MY SEAR SPRING.

# Don't Forget Cocking Lever

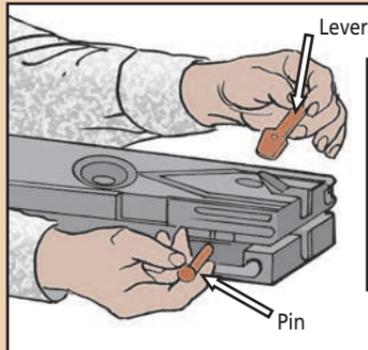


Dear Editor,

I noticed on Page 17 in PS 656 (July 07) that your article on replacing the M2 machine gun sear spring said to first depress the sear and remove the sear slide.

That is really not correct. First you need to remove the cocking lever retaining pin, the cocking lever and the accelerator stoplock. Then you can remove the sear, sear slide, and sear spring.

Gerald Davison  
TACOM Logistics Assistance Representative  
Ft Riley, KS



Remove cocking lever pin, cocking lever and accelerator stoplock first

*Editor's note: Good point, Mr. Davison. Thanks for the correction.*

## Storing M1 and M14 Rifles

Dear Half-Mast,

What rack can we use to store M1 or M14 rifles? The M12 rack won't work for them.

L.H.

Dear Mr. L.H.,

Use the old M11 rack, NSN 1095-00-897-8755. It can securely hold M1 or M14 rifles.

*Half-Mast*

MLRS...

MECHANICS, REMEMBER THESE POINTS AND YOU WILL SAVE YOUR MLRS AND YOURSELF HEADACHES DOWN THE LINE.

YES, LET'S AVOID THOSE HEADACHES!

## A FEW THINGS TO REMEMBER

**Make sure you have the Duo-Chek battery tester.** It should be part of every MLRS repairman's tool kit. The tester lets you easily test every battery cell, which is critical for the MLRS. Because the MLRS needs all the battery power possible, even one bad cell can cause problems. If you're missing the Duo-Chek, order it with NSN 6630-00-105-1418.

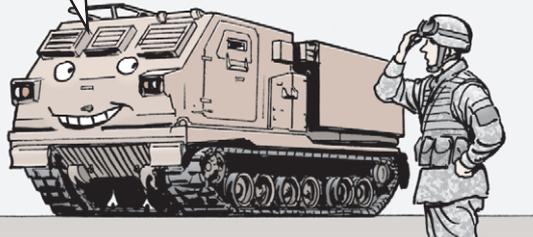
Duo-Chek makes battery testing quick and easy



AHHH, MY LLM IS SETTLING IN STOW.

BUT DON'T WORRY ABOUT THAT SLIGHT MOVEMENT.

THAT'S NORMAL FOR ME!



**Don't worry about slight movement when you stow the LLM.**

After you stow the LLM, it will sometimes come back up 1/4 inch after it settles into place. This is not abnormal as long as the LLM hooks engage. If they don't, then you've got a problem.

**Check the boom adjust handle for corrosion during weekly PMCS.** The MLRS TM says to lube the handle quarterly. If you're firing often or are in a humid area, you may need to lube more often. If the screw in the handle freezes from corrosion, the handle might break when you try to use it. If you spot corrosion, clean it off with a wire brush and then lube the handle with CLP.

**Don't forget the tow pintle.**

Most MLRS crews forget it because it's rarely used. But if you let it freeze up from corrosion, you will be hurting if you need a tow. Check during weekly PMCS that the pintle moves freely. If it doesn't, give a couple of squirts of GAA to each of its two lube points. It's also a good idea to spray a coat of light oil where the pintle fits into the carrier. Then move the pintle back and forth to spread the lube.

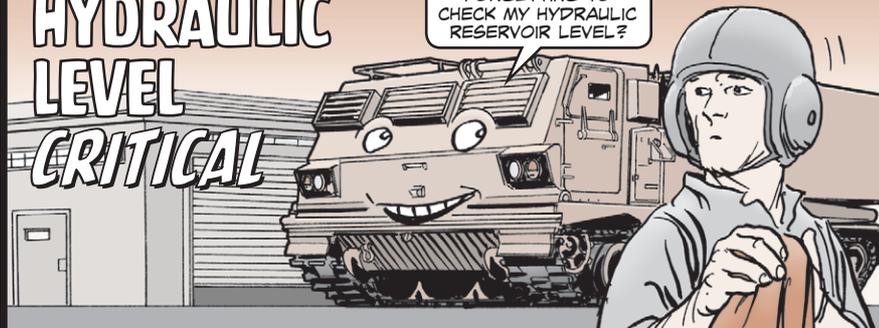


Spray light oil where pintle fits in carrier and work pintle back and forth

MLRS Launcher...

## HYDRAULIC LEVEL CRITICAL

HEY! AREN'T YOU FORGETTING TO CHECK MY HYDRAULIC RESERVOIR LEVEL?

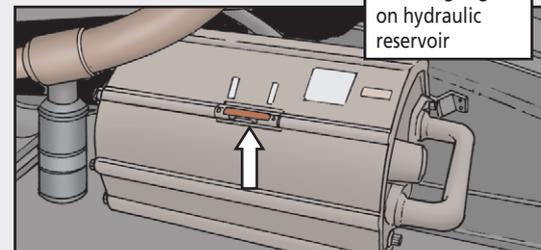


**W**hen you shut down your MLRS launcher for the day, don't forget to check the fluid level in the hydraulic reservoir.

Because the launcher has to be raised and the struts put in place to do it safely, a lot of crewmen shrug it off. But if the level is low, you'll get erratic movement of the launcher during operation. And that makes your vehicle NMC.

Eyeball the sight glass on the reservoir. If the level is between the two arrows, you're good to go. If not, tell your mechanic. He'll add hydraulic fluid, NSN 9150-00-111-6254, to bring the fluid level back up.

Check sight glass on hydraulic reservoir



Mine Clearing Line Charge...

# But What Exactly Is Wrong?

I KNOW YOU'VE GOT A SHORT SOMEWHERE.

BUT WHERE?

HERE'S A SHORT WAY TO FIND SHORTS!



The continuity check in the MICLIC's TM 9-1375-215-13&P does a great job telling you when you have a short in the electrical system. But it isn't very specific about where the short is.

Here's a quick way to find what exactly is wrong:

**CAUTION : The MICLIC should not be loaded during this test.**

Test the M51 blasting cap set to make sure it's working. See the -13&P for the test procedure.

Make a shunt wire from a two-in piece of commo wire. Hook the M51 blasting cap test set to the control box using the two-wire pigtailed cable. Connect the shunt to the control box's J2 connector A and B holes to test ROCKET and to the B and C holes for the CHARGE test.

Cycle the M51. If the M51 lights up for both tests, the control box is good.

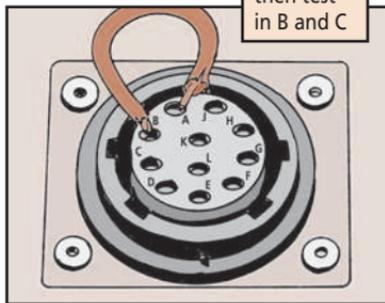
Next connect the W3 cable to the control box. Do the above test for the W3's A and B and B and C holes. Set the control box selector to ROCKET for the A-B check and to CHARGE for the B-C check.

If the W3 is good, connect the W5 cable to the W3 cable and do the same checks.

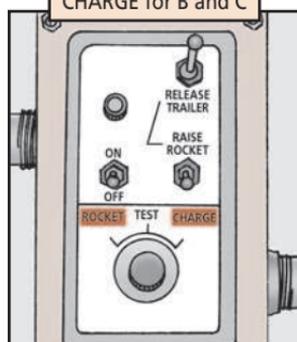
If the W5's OK, plug the open end into the safety box. Lower the launch rail and do the above A-B and B-C test on the safety box cable.

The M51 should NOT light up on either test. Raise the LAUNCH rail and do the above tests again. Now the M51 should light up. Lower the rail and plug the safety box cable into the tub's charge box and do the normal continuity test. If at any point a box or cable flunks the test, you know immediately what must be replaced. When you're finished testing, return the control box selector switch to SAFE.

First test in A and B, then test in B and C



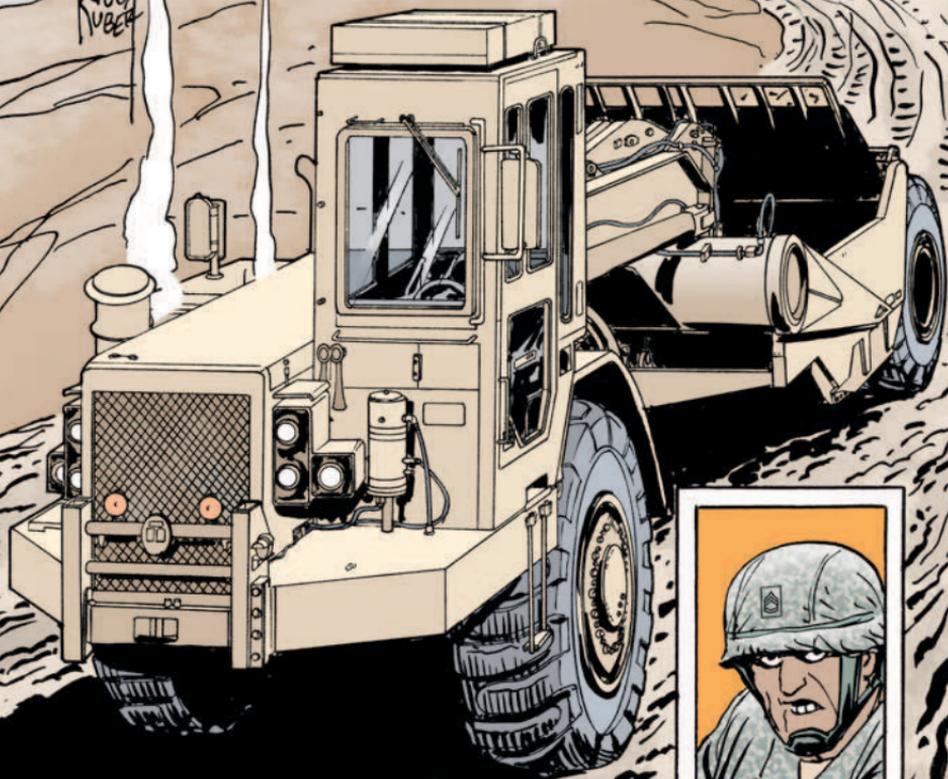
Set to ROCKET for A and B, and CHARGE for B and C



OUR STORY TODAY CONCERNS A RESERVE UNIT THAT LEARNS A VALUABLE LESSON OR TWO ABOUT PREVENTIVE MAINTENANCE. WE'LL CALL THIS LESSON...

# ONE MORE TIME

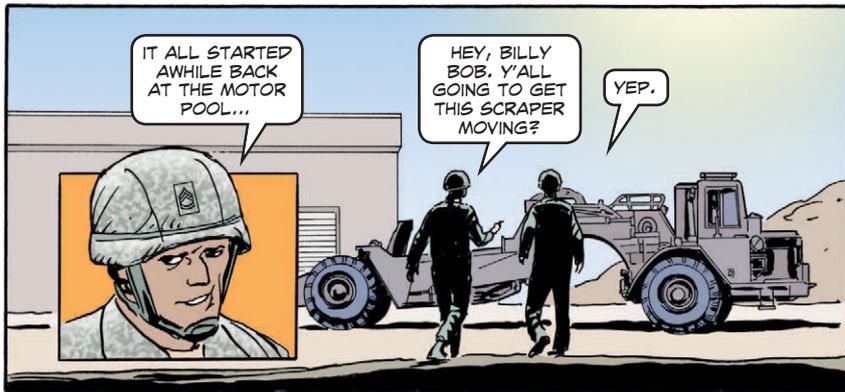
K. JOE  
VUBER



WHAT AM I SO SORE ABOUT?  
I'LL TELL YA WHAT I'M SORE ABOUT!

I'VE HEARD THE *SAME* STORY OVER AN' OVER AGAIN! 'ONE MORE TIME'! THEY SAID, ONLY *ONE MORE TIME!*





IT ALL STARTED  
AWHILE BACK  
AT THE MOTOR  
POOL...

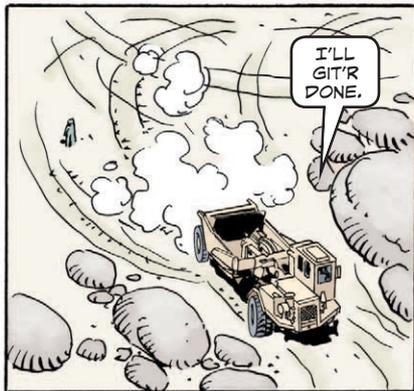
HEY, BILLY  
BOB. Y'ALL  
GOING TO GET  
THIS SCRAPER  
MOVING?

YEP.

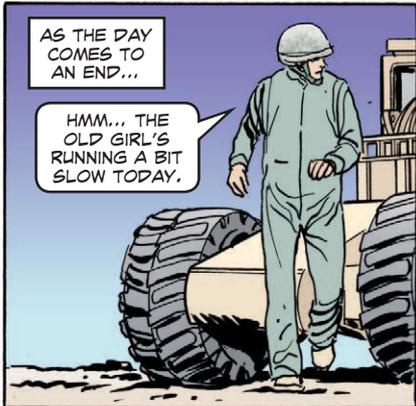


WE NEED TO  
MOVE SOME  
DIRT THIS  
MORNING.

SURE  
THANG!

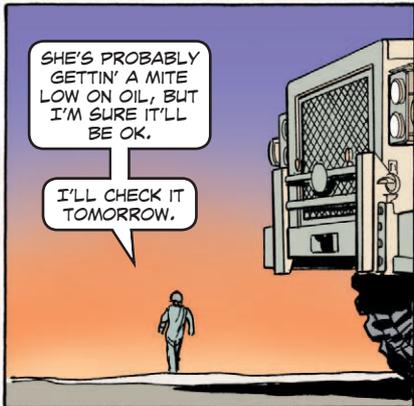


I'LL  
GIT'R  
DONE.



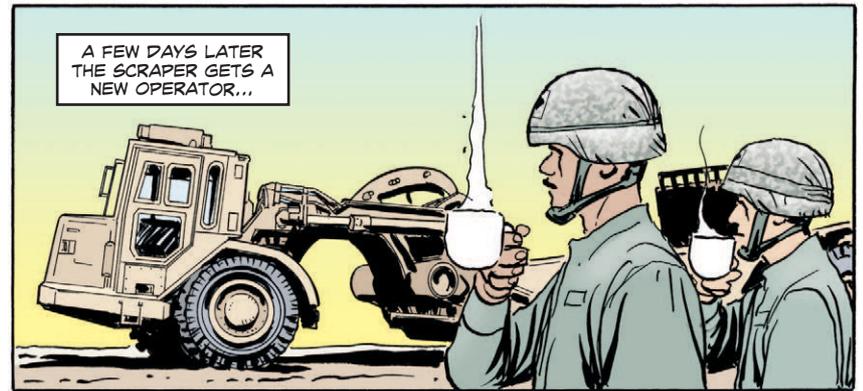
AS THE DAY  
COMES TO  
AN END...

HMM... THE  
OLD GIRL'S  
RUNNING A BIT  
SLOW TODAY.



SHE'S PROBABLY  
GETTIN' A MITE  
LOW ON OIL, BUT  
I'M SURE IT'LL  
BE OK.

I'LL CHECK IT  
TOMORROW.



A FEW DAYS LATER  
THE SCRAPER GETS A  
NEW OPERATOR...

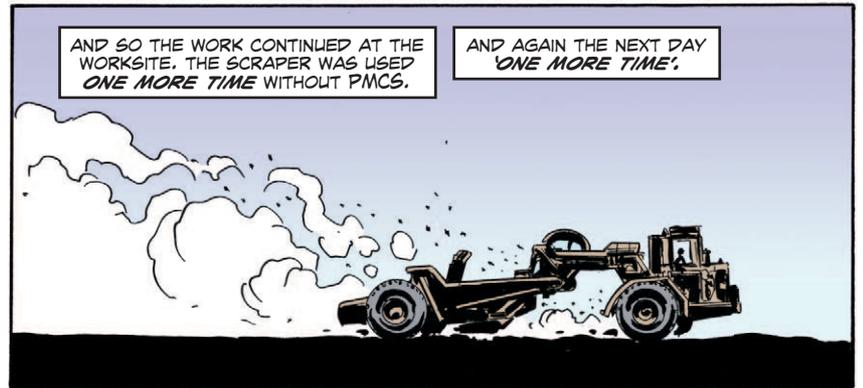


I GOTTA  
USE THE  
SCRAPER  
TODAY IN  
THE BACK  
FORTY.

HOW'S SHE  
RUNNIN'?



A LITTLE  
SLOW THE  
OTHER  
DAY...  
BUT SHE  
OUGHTA BE  
OKAY **ONE  
MORE  
TIME**.  
WE'LL PULL  
PMCS  
LATER.



AND SO THE WORK CONTINUED AT THE  
WORKSITE. THE SCRAPER WAS USED  
**ONE MORE TIME** WITHOUT PMCS.

AND AGAIN THE NEXT DAY  
**'ONE MORE TIME'**.



BILLY BOB AND HIS BUDDY WERE DEPLOYED TO SOUTHWEST ASIA...



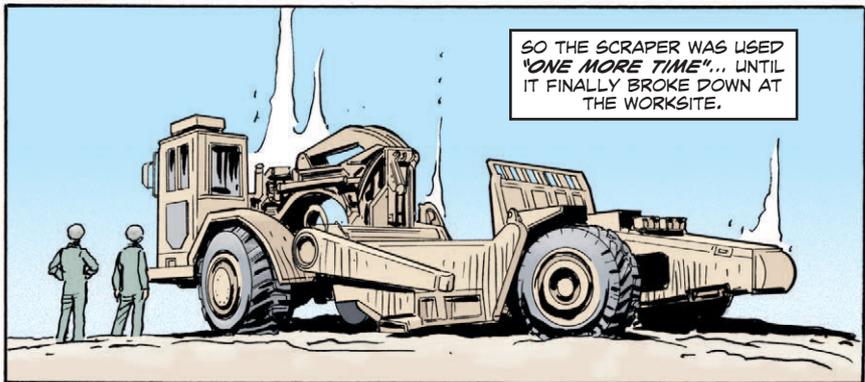
...AND CAME BACK TO THEIR UNIT A YEAR LATER. THE SCRAPER HAD BEEN USED SEVERAL TIMES THAT YEAR FOR JUST "ONE MORE TIME".



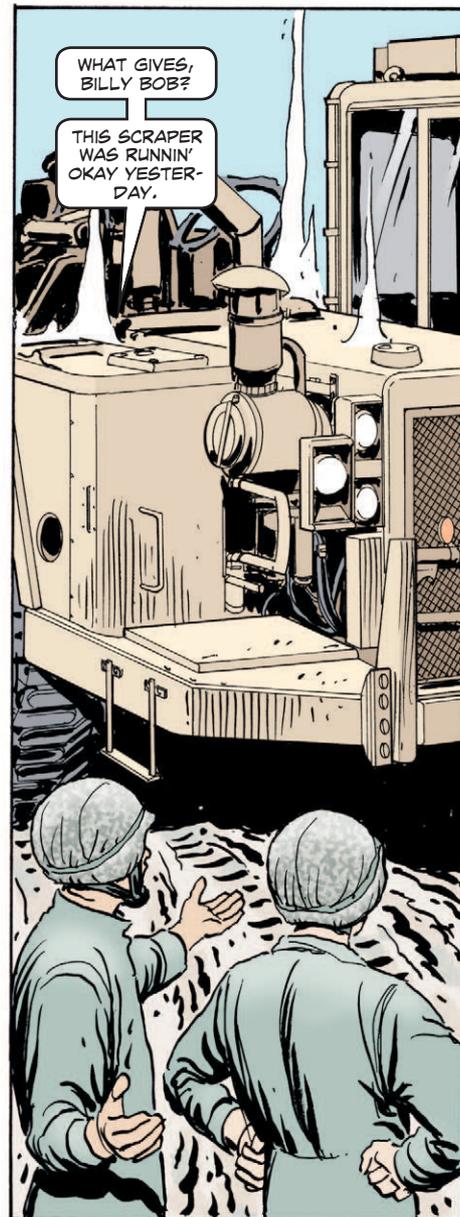
THE SCRAPER WOULD SIT FOR WEEKS OR MONTHS AT A TIME WITH NO ATTENTION.



AND IT WAS USED "ONE MORE TIME" BY VISITING UNITS OR SENT TO THE WORKSITE FOR CONSTRUCTION OPERATIONS.



SO THE SCRAPER WAS USED "ONE MORE TIME"... UNTIL IT FINALLY BROKE DOWN AT THE WORKSITE.



WHAT GIVES, BILLY BOB?

THIS SCRAPER WAS RUNNIN' OKAY YESTER-DAY.



I WAS GONNA USE IT ONE MORE TIME TO...

YOU WERE GOING TO USE IT *ONE MORE TIME*...



... *THAT'S THE PROBLEM!*



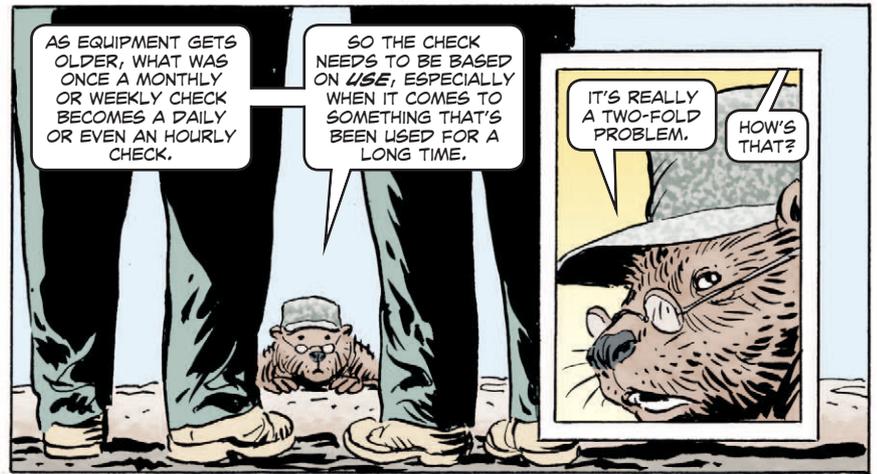
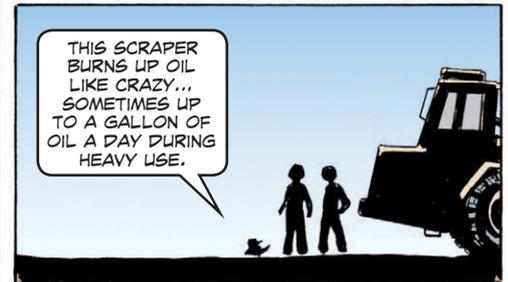
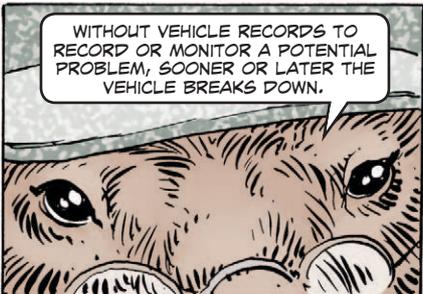
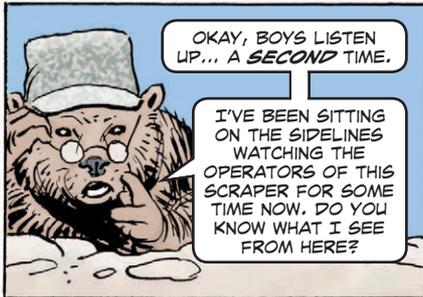
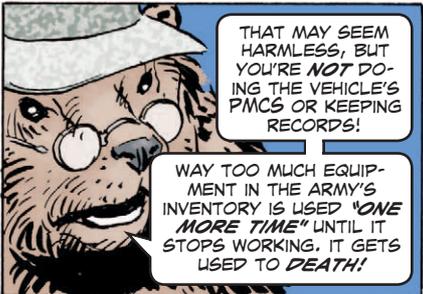
I HEARD A VOICE.

NO ONE IS HERE EXCEPT US AND THAT OLE GROUND HOG.



WHO YA CALLIN' *OLD*?

I COME OUT TA CHECK MY SHADOW... AND I GET INSULTED!





ELSE...

# FREE HELMET LINER COVER



This TPL cover is used in place of the pro-mask during fitting and flying in a non-NBC environment with the IHADSS helmet.

To get free TPL covers you must use a "free issue" signal code M or D depending on where you want the covers shipped.

Use D to have them shipped to the requisitioner (cc 30-35). Use M to have them shipped to the supplementary address (cc 45-50), like it says in Appendix C, paragraph C-9, page 244 of AR 725-50. Use DA Form 2765 and make sure the project code "CME" is annotated on the requisition.

You can only order covers for the helmets you have on hand, and when the supply is gone, the free deal is over.

TPL covers are in limited supply



# DON'T FORGET THE FILTERS

IT'S FILTER CHECK TIME!

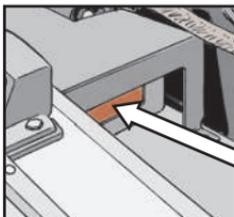
GOOD, I FEEL LIKE I HAVE A TEMP.



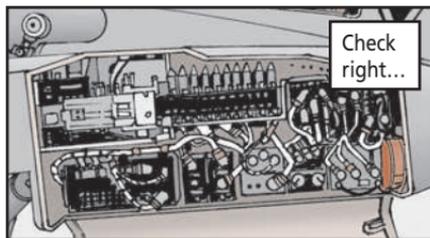
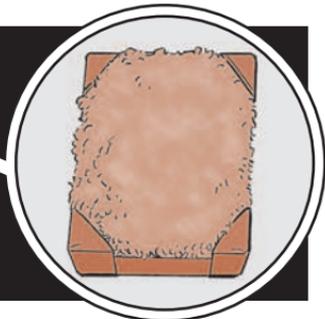
**P**ilot and co-pilots, if you don't want to **sweat** the small stuff in the desert, then **check** the small stuff, like filters.



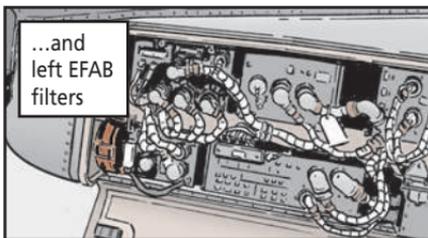
MAKE SURE YOU HAVE CLEAN FILTERS ON YOUR AH-64A/D'S ENVIRONMENTAL CONTROL SYSTEM (ECS) AIR INTAKE VENT AND LEFT AND RIGHT EXTENDED FORWARD AVIONICS BAY (EFAB).



Check air intake filter



Check right...



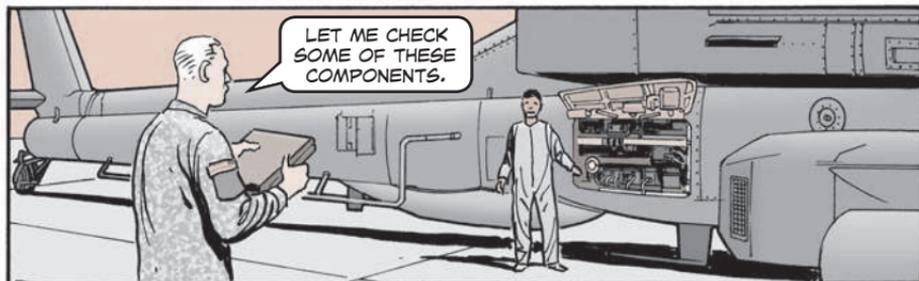
...and left EFAB filters

The filters keep dust and dirt out of the cockpit and avionics bays. But clogged filters stop cooling air so avionics in the EFAB bays or cockpit overheat and stop working. That affects cockpit controls and digital panels—the brains of the aircraft.

The ECS system works efficiently with clean intake filter. A clogged EFAB and ECS filter is the difference between cockpit instruments and the pilot and co-pilot staying cool or burning up.

Keep in mind that all aircraft systems with filters work better in the desert if they're inspected, cleaned and replaced when needed. Especially in the desert, **frequent** checks and filter replacement are in your—and your bird's—best interest.

# Take Heed of Warnings



**M**echanics, attention to detailed warnings is a good practice when inspecting components in your AH-64's right hand aft avionics bay.

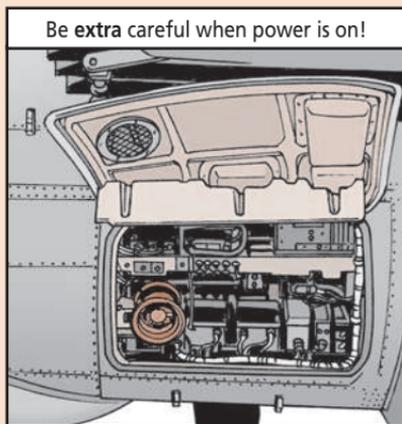
Pay attention to the IETM for the D-model and TM instructions for the A-model before inspecting components in the bay.

Although warnings say not to stick your hands in the bay when power is applied, there are instances when you do have to stick your hands in the bay.

For example, if you're adjusting the radar altimeter, your hands must go into the bay while the vaneaxial fan spins. The IETM warning tells you to be cautious of the exposed vaneaxial fan blades.

That puts your fingers in harm's way of the rear face of the vaneaxial cooling fan's sharp spinning blades.

The blades can cut off your fingers, so be very careful!



# WATCH YOUR FEET AND HANDS

LOOKS LIKE WE ALL GOTTA GO TOP-SIDE.

YOU GUYS AREN'T GOING *ANYWHERE!*

*NOPE!* NOT UNTIL YOU LEARN WHERE *NOT TO STEP...*

*...AND WHAT NOT TO GRAB!*



**W**hen you're hiking, be aware of where you put your hands and feet. Snakes and other critters can hurt you or you can hurt yourself stepping in the wrong place or grabbing the wrong thing.

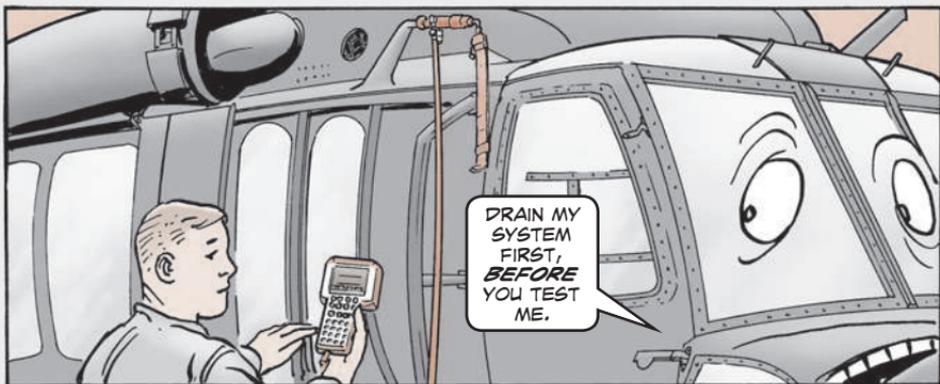
The same goes for looking around your aircraft. Be careful where you plant your feet when you go topside and watch what you grab with your hands to get there.

Stepping on NO STEP zones can crack the bird's unsupported skin. Grabbing things like the FM homing antenna or the cockpit foam glare shield on a Black Hawk can cause damage. They're not handholds.

Many areas on your aircraft cannot take your weight.

So if you're unfamiliar or unsure about your bird's NO STEP areas and the NO HANDHOLD areas, check your aircraft's markings, TM and IETM. They'll show all the steps, handholds and walkways, as well as NO STEP areas.

# Take Care of Test Set



**M**echanics, water doesn't belong in the pitot static system of your bird. But water can get in while you're in flight or on the ground.

While performing the pitot static test, the tester creates a vacuum that sucks any water in the system into the test set. When that happens, the tester could be damaged beyond repair. So get the water out! Prior to performing a pitot static test on the bird's gauges using test set, NSN 4920-01-388-6790, first drain any water from the system's air passages to ensure dry air.

If you ignore or forget to drain the system like it says in Para 4-3 of TM 1-1500-204-23-4, you could ruin a \$32,000 test set!

**REMEMBER,  
DRAIN FIRST  
BEFORE  
TESTING.**

**AND CHECK OUT THE  
GOOD WORDS IN TM 43-  
4920-910-12 TO TAKE  
CARE OF THE TEST SET.**



# Battery Options

**B**y now you've exchanged all your broken and busted AN/PRC-112 survival radios, NSN 5820-01-279-5450 and NSN 5820-01-458-6018, for the new D model, NSN 5820-01-500-1535.

You're excited about the new features like built-in test (BIT) indicators for both the radio and its batteries and more battery options. But maybe you're asking, just what are those battery options?

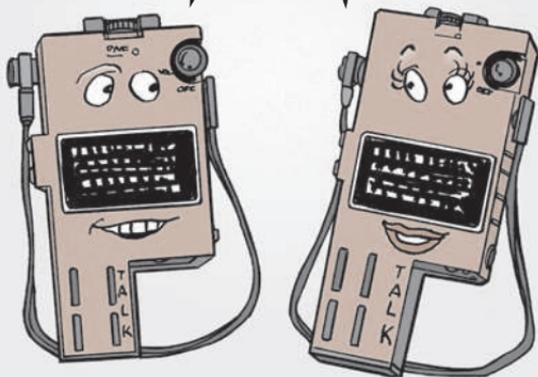
I'm glad you asked!

You can still use the standard, sealed lithium-sulfur dioxide battery, BA-5112A/U, NSN 6135-01-439-6229. After it's discharged, it's done!

You can also use eight AA non-rechargeable lithium L91 batteries, NSN 6135-01-333-6101. If you go this route, you'll need battery pack, NSN 5940-01-504-8134, to hold the eight batteries.

NOT ONLY ARE WE NEW...

WE HAVE SOME NEW BATTERY OPTIONS, TOO!



Another option is eight AA rechargeable nickel-metal hydride batteries, NSN 6130-01-487-2385. For them, you'll need battery pack, NSN 5940-01-520-9597 and battery charger, NSN 6130-01-537-4260.

For ordering info, write:

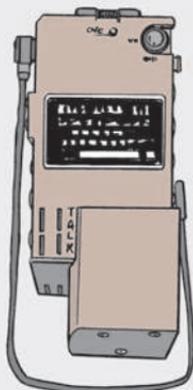
**Battle Creek Customer  
Interaction Center  
Defense Logistics Information Service  
74 Washington Ave. N  
Battle Creek, MI 49017-3084**

Or call: (877) 352-2255/

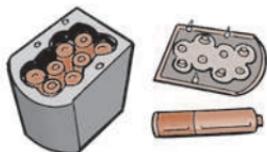
DSN 661-7766/ (269) 961-7766

Or fax: DSN 661-5305/(269) 961-5305

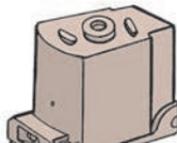
Or email: [dlis-support@dla.mil](mailto:dlis-support@dla.mil)



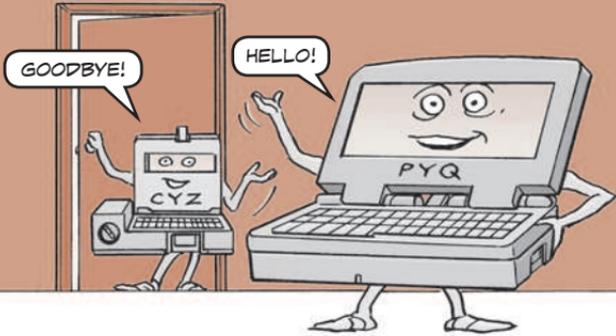
You can use 8 AA non-rechargeable batteries...



... or you can use 8 AA rechargeable batteries



# SIMPLE KEY LOADER ADVICE



**A**s the AN/CYZ-10 heads out the door and the AN/PYQ-10(C) simple key loader (SKL) heads in, here are two things you need to know.

First, bookmark this website as one of your favorites:

Bookmark  
this page!

<https://rdit.army.mil/commssc/menu.cfm>

**SEC**  
Communications  
Systems  
Support Center

Date: 9 October 2007  
Time: 11:36:05

Search SPCR Knowledge Database

- Report a Problem / Incident
- View Field Incident Reports
- Order, Download, or Register Software
- Technical Publications
- Document Management System
- Collaboration Forum
- File Transfer System
- Administration Menu
- Related Links
- Website Description & System Contact Information
- User Feedback

At this website you'll get great info on the simple key loader, like how to upgrade the software to the 4.0 package and the latest version of TM 11-5810-410-13&P.

You'll have to register to use it!

Are you a registered user of the SEC Communications Systems Support Center?

IF NOT, Click Here to apply for a User Account.

Log In with NO user ID & Password

User ID:

Password:

Log In

Forgot your User ID or Password?  
Go to the SEC Communications Systems Support Center? [Click Here](#)

Second, write down and keep handy the number to the SKL Help Desk. It's toll-free, 1-866-651-1199. They're ready to help you solve all your SKL problems.



## Send Them In for Repairs

**R**Real time coordination between all the services is what the AN/USC-55A, NSN 5895-01-443-9072, and AN/USC-55B, NSN 5895-01-443-8178, commander's tactical terminal three channel (CTT3) are all about.

But a busted terminal can't coordinate worth jack! (Or with him, either!)

IF YOU'RE IN IRAQ, AFGHANISTAN OR KUWAIT, SEND THE TERMINAL TO A REGIONAL SUPPORT CENTER (RSC). THEY'LL TEST IT, TELL YOU WHAT'S WRONG, **AND** GET IT FIXED.

HERE ARE THE CENTERS AND THEIR POCs:

### Iraq

RSC, Camp Liberty, Baghdad  
William Buttner  
DSN 312-987-2258, ext. 4050  
Commercial 732-427-2258 ext. 4050  
[buttnerw@mmcs.army.mil](mailto:buttnerw@mmcs.army.mil)

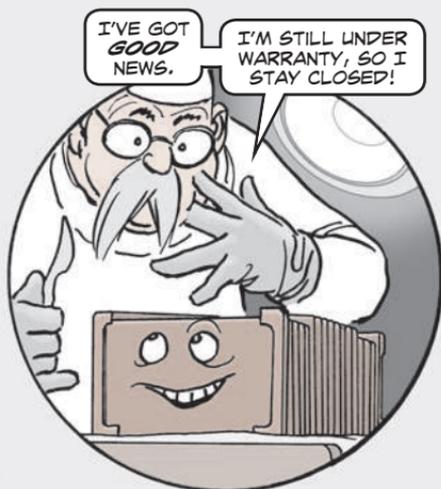
### Afghanistan

RSC, Bagram (AB)  
Cheryl Jankowski  
DSN 312-987-5110, ext. 6019  
Commercial 318-231-9042  
[jankowskic@mmcs.army.mil](mailto:jankowskic@mmcs.army.mil)

### Kuwait

RSC, Camp Arifjan  
Michael J. Hasse  
DSN: 318-430-4621  
Commercial 011-965-967-4587  
[mike.hasse@us.army.mil](mailto:mike.hasse@us.army.mil)

# DON'T GO INSIDE!



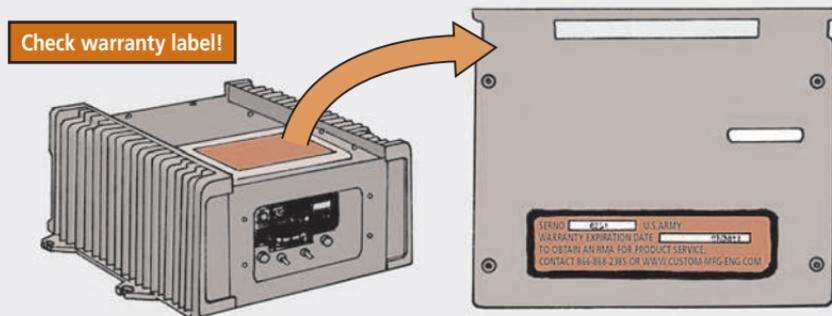
**B**usting into the sealed case of a less than four-year-old PP-2953D/U power supply, NSN 6130-01-522-3494, is verboten! (That means a really bad idea!)

Power supplies less than four years old are still under warranty. But the warranty is null and void (no good, no more) if you break into the case!

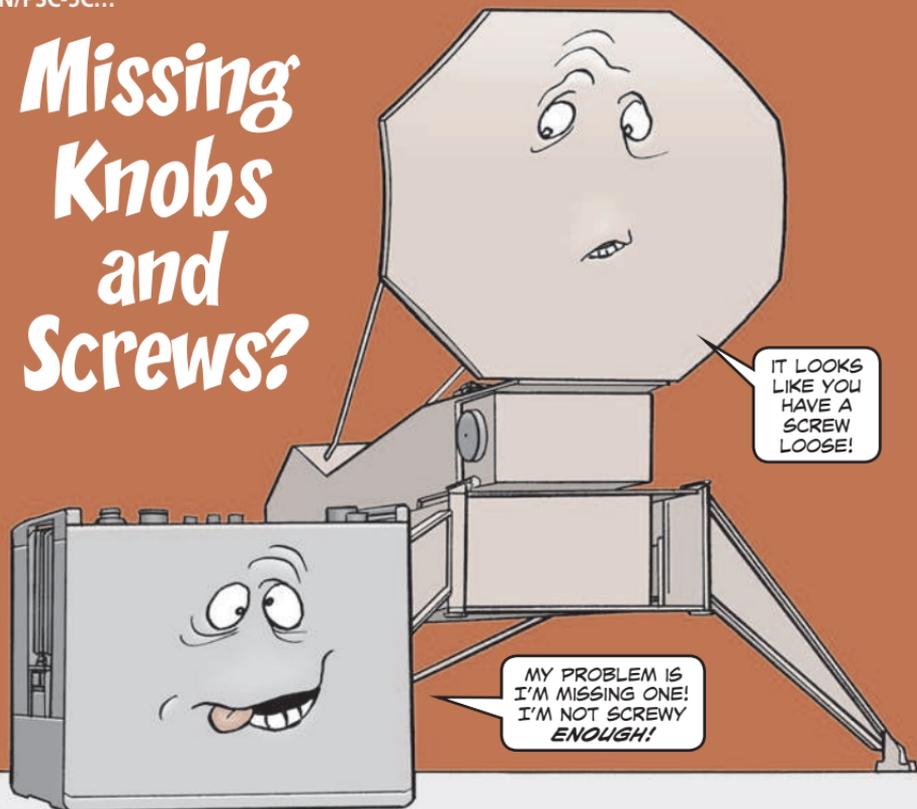
If you're having a problem with the power supply, ship it back to the manufacturer, Custom Manufacturing & Engineering (CME) in St. Petersburg, FL. You can call them at 1-866-868-2385.

There's a label on the power supply that tells you the month and year the warranty expires (four years from issue).

If you have general questions about the power supply, even the older original A, B or C models, call C-E LCMC's Charles Puleo at DSN 987-4767 or (732) 427-4767. Or email him: [charles.puleo@us.army.mil](mailto:charles.puleo@us.army.mil)



# Missing Knobs and Screws?

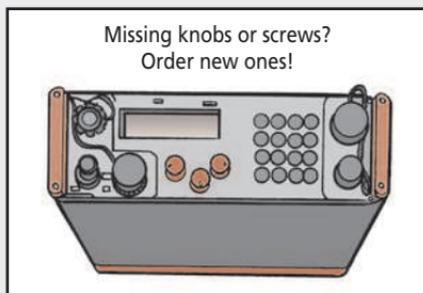


**T**he three control knobs—squelch, dim and volume—on the AN/PSC-5C tactical satcom radio are each held in place by a setscrew. That setscrew is PN MS5-1021-21, NSN 5305-00-531-0137. It is not setscrew, PN130937-1, NSN 5305-01-512-1703. If you have anything that says it is—like the new manuals on the AN/PSC-5C—correct it.

If you're missing a knob, order a new one with NSN 5355-01-409-0798.

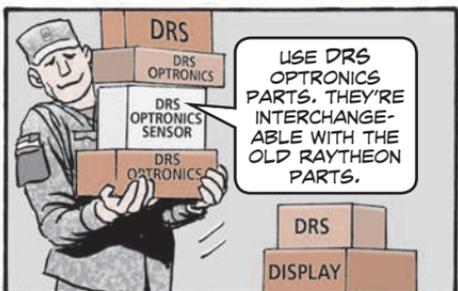
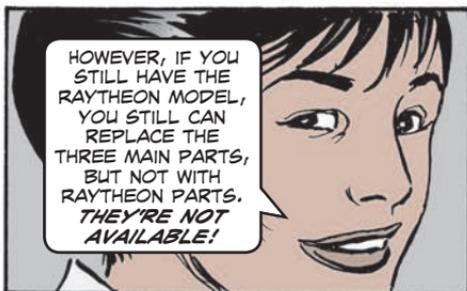
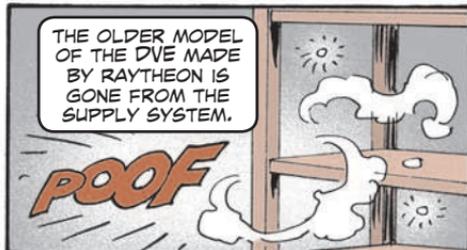
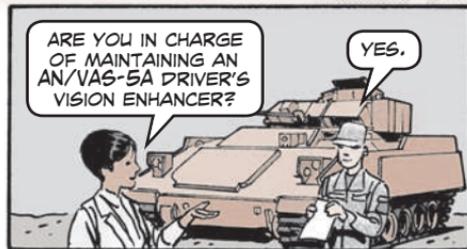
Figure 5-1 of TM 11-5820-1130-12&P for the radio shows the knobs and the screws, but does not give you NSNs or part numbers.

The right NSNs and part numbers are shown in Fig B-3 of TM 11-5820-1130-30&P.



# OUT WITH THE OLD,

# IN WITH THE NEW

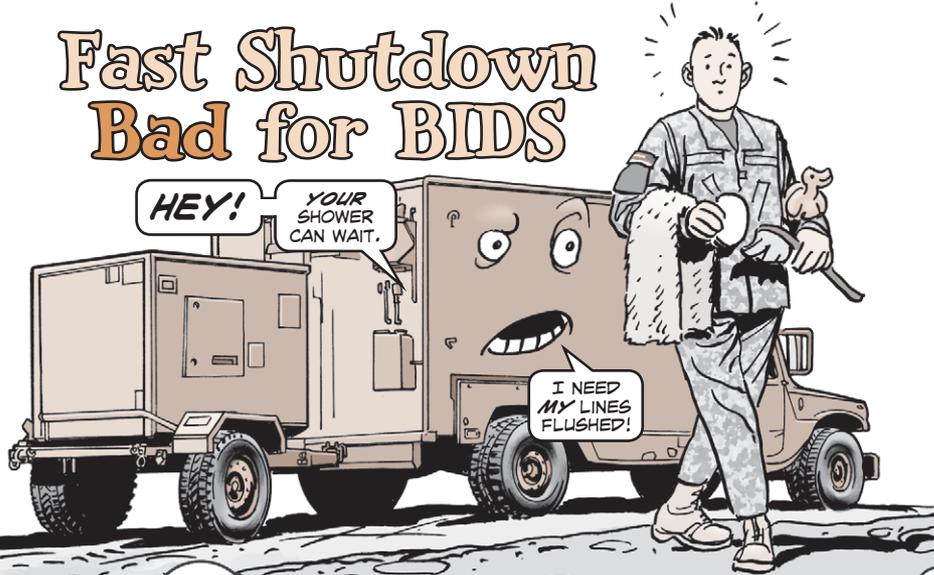


HERE ARE THE OLD ONES. **DON'T ORDER THEM!** USE THE NEW ONES!!



Part	Raytheon (old)	DRS Optronics (new)
Display	5980-01-480-4875	5980-01-525-1688
CV sensor	5855-01-480-4876	5855-01-525-1636
TWV sensor	5855-01-480-4873	5855-01-525-1631

# Fast Shutdown Bad for BIDS



HEY!  
YOUR SHOWER CAN WAIT.

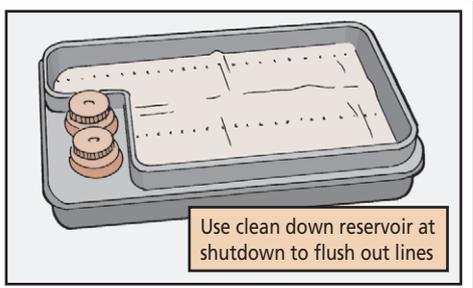
I NEED MY LINES FLUSHED!

IT'S UNDERSTANDABLE THAT AFTER A LONG DAY IN THE FIELD YOU'RE IN A RUSH TO GET OUT OF YOUR DIRTY CLOTHES AND INTO A HOT SHOWER.



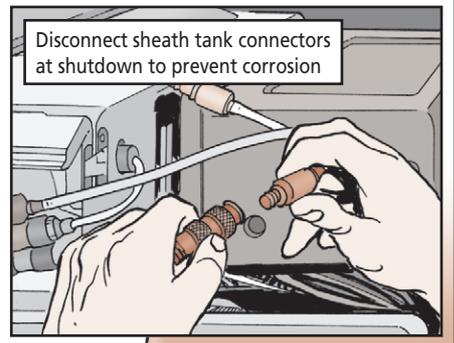
BUT THAT DOESN'T MEAN YOU CAN RUSH THE SHUTDOWN OF YOUR P31 BIDS (BIOLOGICAL INTEGRATED DETECTION SYSTEM).

To do a proper shutdown takes 15 minutes. That's because a proper shutdown includes flushing the entire biological detector. To do that you must remove the biological detector assay reservoir and replace it with the clean down reservoir and then run the BIDS until all solution is flushed from the lines.



What happens if you just shut down the P31 BIDS and walk away? At best, next time you turn on the biological detector you get an RLM fault because there still is solution in the lines. But if the system sits for a long period—as it often does—the solution can crystalize in the lines and the lines clog. If they become too clogged, the lines must be replaced.

One other thing to remember at shutdown is to disconnect the sheath tank connectors that are part of the mini-flow cytometer. This isn't mentioned in the TM's shutdown procedure. If the connectors are left connected, solution can leak into the tray below the mini-flow cytometer and then spill into the chemical biological mass spectrometer. That can lead to widespread and expensive corrosion.



Disconnect sheath tank connectors at shutdown to prevent corrosion

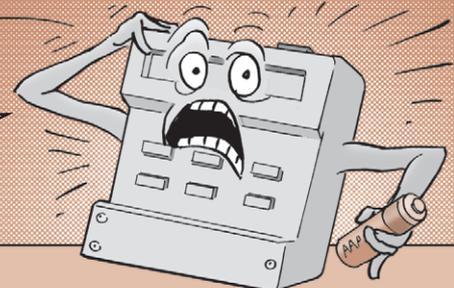


SO TAKE YOUR TIME AT SHUTDOWN.

YOUR BIDS WILL APPRECIATE IT AND THAT HOT SHOWER WILL STILL BE WAITING FOR YOU.

AN/UDR-13 Radiac Set...

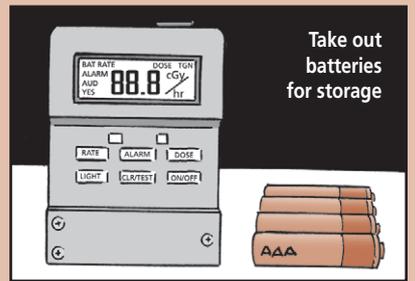
**REMOVE BATTERIES OR I'M RUINED!!**



Too many AN/UDR-13 radiac sets are taking an unwelcomed trip to TMDE repair because CBRN NCOs aren't taking out their batteries for storage.

If the four AAA batteries are left in the radiac set when it's just going to sit in the CBRN room for weeks, the batteries will probably leak and corrode. That ruins the AN/UDR-13's electrical-electronic test case, which costs \$378 to replace. And it will take weeks to get it back.

All you have to do to prevent that is remember to remove those AAAs!



Take out batteries for storage

# SEALING COMPOUNDS HOLD FAST



WHEN YOU NEED TO LOCK AND SEAL THREADED FASTENERS, APPLY SEALING COMPOUND.

IT'LL HOLD THEM TIGHT.



THE COMPOUND COMES IN VARYING STRENGTHS AND FOR ALL KINDS OF APPLICATIONS. THE TABLE BELOW SPELLS OUT THE SIZES, USES AND FEATURES.

USE THIS CHART TO FIND THE COMPOUND YOU NEED!

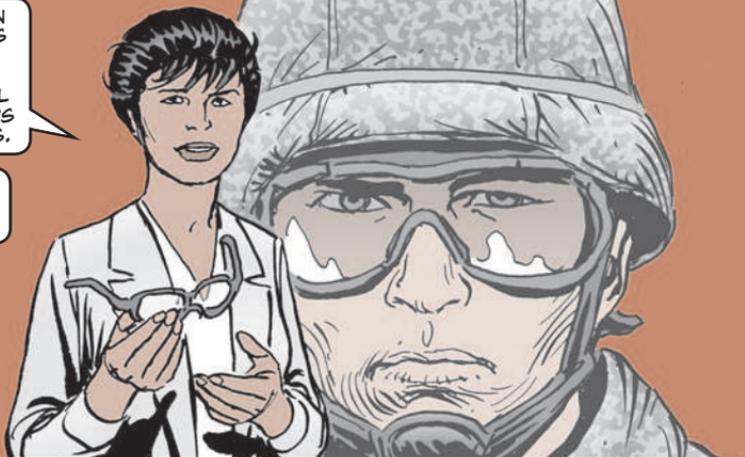
NSN 8030-	Size	Typical Use	Color	Breaking Torque (lb-in)	Holding Torque (lb-in)	Initial Set (minutes)
01-054-3968	Ten 10-cc bottles	Small screws under 3/4-in	Purple	53	30	20
01-069-3046	50-cc bottle	Small screws under 3/4-in	Purple	53	30	20
01-104-5392	Ten 10-cc bottles	Up to 3/4-in bolts (removable lock)	Blue	115	53	10
01-014-5869	50-cc bottle	Up to 3/4-in bolts (removable lock)	Blue	115	53	10
01-025-1692	250-cc bottle	Up to 3/4-in bolts (removable lock)	Blue	115	53	10
01-142-9830	Ten 50-ml bottles	Up to 3/4-in bolts (permanent lock)	Red	190	275	20
01-142-3131	250-cc bottle	Up to 3/4-in bolts (permanent lock)	Red	190	275	20
01-171-7628	50-ml bottle	High temperature applications	Red	200	220	30
00-111-2763	Ten 10-cc bottles	Wicking grade for preassembled parts	Green	85	250	20
00-111-2762	50-cc bottle	Wicking grade for preassembled parts	Green	85	250	20
01-050-8288	250-cc bottle	Wicking grade for preassembled parts	Green	85	250	20
01-390-7555	20-gram bottle	Small plastic fasteners	Blue	5	4	2

# THE LATEST VIEW

FROM THE WAR ON  
TERRORISM COMES  
ANOTHER GRIM  
STATISTIC:  
10 PERCENT OF ALL  
WOUNDED SOLDIERS  
HAVE EYE INJURIES.

FACT IS, *COMBAT  
CAN COST YOU  
YOUR SIGHT.*

THAT'S A  
POWERFUL  
ARGUMENT  
FOR WEARING  
COMBAT EYE-  
WEAR DURING  
MISSIONS AND  
TRAINING.



In addition to the old standards—the sun, wind and dust goggles (SWDG), the ballistic/laser protective spectacles (BLPS) and the special protective eyewear cylindrical system (SPECS)—the Army has tested and approved several new commercial versions. The new ones make up the authorized protective eyewear list (APEL).

**The only Army-approved combat eyewear are the SWDG, BLPS, SPECS and the products found on the APEL.**

Sure, you can buy all kinds of eyewear in stores and online. Some even have NSNs. But just because a product carries an NSN doesn't make it safe to use. Unapproved eyewear does not offer the degree of protection combat soldiers need. So don't risk your sight. Use only the SWDG, BLPS, SPECS or the products found on the APEL. All APEL eyewear carry a green APEL label.

All the combat eyewear offers ballistic fragmentation and ultraviolet protection. Most individual products have interchangeable lenses. Only clear and gray/smoke sunglass lenses are authorized. Other lens tints, such as yellow, orange, rust and those known as “blue blockers”, are not authorized. They make it hard to recognize certain colors. The only exceptions are the green or brown laser-protective lenses that fit the SWDG, BLPS and SPECS.

## Laser in the Eye

The commercial products on the APEL DO NOT provide laser eye protection. If you need to protect your eyes from lasers, wear the SPECS, BLPS or SWDG—and order the appropriate laser-protective lenses.

PS MORE

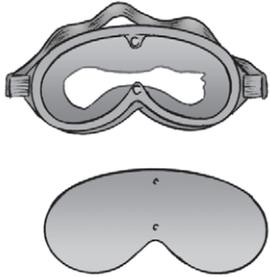
HERE'S A RUNDOWN OF ALL COMBAT EYEWEAR AND REPLACEMENT PARTS AUTHORIZED FOR ARMY USE, STARTING WITH...



## THE OLD VETERANS

### Sun, Wind and Dust Goggles

Sun, wind and dust goggles (SWDG) are worn both by soldiers who need prescription eyeglasses and by those who don't. If you wear eyeglasses, the SWDGs fit over them. The laser-protective lenses also provide ballistic fragmentation protection. One size fits all.



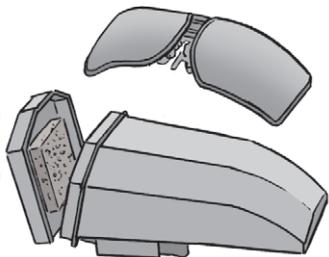
Item	NSN 8465-01-
SWDG Kit with Type 3 clear lens and Type 4 gray lens. Includes frame, head strap and case.	328-8268
Type 5 green lens, 2 wavelength (WL) laser protection	439-3506
Type 6 brown lens, 3 wavelength (WL) laser protection	439-3511
Type 3 clear lens	109-3997
Type 4 gray lens	109-3996

### Ballistic/Laser Protective Spectacles

Ballistic/laser protective spectacles (BLPS) are primarily for soldiers who wear prescription eyeglasses. BLPS have an optional prescription lens carrier (PLC) to hold your prescription lenses. The PLC fits behind the protective lens.

You can also wear the BLPS PLC with the M40A1 mask by using an adapter, NSN 4240-01-389-7152. It's available through your optometry clinic.

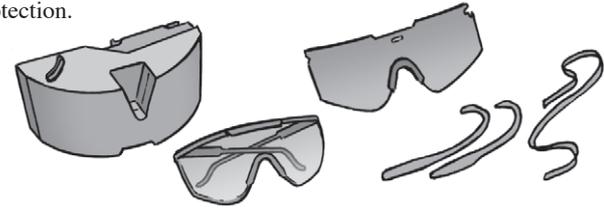
BLPS are available in four kinds of lenses: clear, gray (sunglass), and 2 wavelength (WL) and 3 wavelength (WL) laser protection. Each comes in its own frame, with a head strap and a carrying case. The laser-protective lenses also provide ballistic fragmentation protection. One size fits all.



Item	NSN
BLPS, clear lens	8465-01-416-4636
BLPS, gray lens	8465-01-417-4004
BLPS, 2 WL laser protection	8465-01-416-3207
BLPS, 3 WL laser protection	8465-01-416-3210
Case	8465-01-417-9963
Head strap	8465-01-416-4637
Prescription lens carrier	6540-01-264-1348

### Special Protective Eyewear Cylindrical System

If you don't need to wear prescription eyeglasses, try the special protective eyewear cylindrical system (SPECS). SPECS comes in two sizes: regular and large. Regular fits most soldiers. The laser-protective lenses also provide ballistic fragmentation protection.



Item	Size	NSN 8465-01-416-
SPECS Kit. Includes clear and gray lenses, frame, head strap and case.	Regular	4626
SPECS Kit. Includes clear and gray lenses, frame, head strap and case.	Large	4629
SPECS, 2 WL laser protection. Includes lens and frame.	Regular	4634
SPECS, 2 WL laser protection. Includes lens and frame.	Large	4632
SPECS, 3 WL laser protection. Includes lens and frame.	Regular	4635
SPECS, 3 WL laser protection. Includes lens and frame.	Large	8516
SPECS, clear. Includes lens and frame.	Regular	4628
SPECS, clear. Includes lens and frame.	Large	4631
SPECS, gray. Includes lens and frame.	Regular	4630
SPECS, gray. Includes lens and frame.	Large	4633
Case	-----	4627
Head strap	-----	4637



THERE'S A REASON THESE GUYS ARE STILL AROUND AND STILL IN USE...

THEY WORK!



# A CLOSER LOOK AT THE APEL

THE COMBAT EYEWEAR FOUND ON THE APEL ARE COMMERCIAL SUBSTITUTES FOR THE NON-LASER SWDG, BLPS AND SPECS.

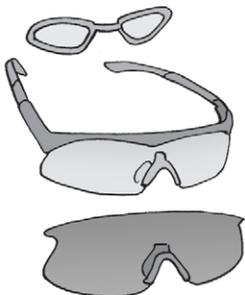
THEY ALL PROVIDE BALLISTIC FRAGMENTATION PROTECTION, BUT **NONE OF THEM PROTECTS YOUR EYES FROM LASERS.**



**AUTHORIZED PROTECTIVE EYEWEAR LIST (APEL) APPROVED**

HERE'S A CLOSER LOOK AT EACH OF THE NEW COMBAT EYEWEAR, ALONG WITH REPLACEMENT PARTS...

## Uvex XC Spectacles



Revision Sawfly USA Military Eyewear

## Eye Safety Systems Interchangeable Component Eyeshield



Uvex XC spectacles can be worn both by soldiers who need prescription eyeglasses and by those who don't. An optional PLC for prescription lenses is available. The wrap-around frame and lens protect the eyes and allow greater peripheral vision. The spectacles come in a one-size-fits-all frame.

## Uvex XC Spectacles

Item	NSN
Uvex XC Spectacle Kit. Includes clear and gray lenses, frame, head strap, case and cleaning cloth.	4240-01-516-5361
Clear lens (pack of 10)	4240-01-516-3469
Gray lens (pack of 10)	4240-01-516-3473
Uvex XC Spectacles. Includes clear lens and frame.	4240-01-516-3460
Uvex XC Spectacles. Includes gray lens and frame.	4240-01-516-3452
Case	4240-01-516-3444
Prescription lens carrier	6540-01-516-5342

## Revision Sawfly USA Military Eyewear

Revision Sawfly USA Military eyewear can be worn both by soldiers who need prescription eyeglasses and by those who don't. They come in two sizes: regular and large. An optional PLC that holds prescription lenses fits both sizes. The eyewear have adjustable temples and a head strap.

Item	Size	NSN
Revision Sawfly USA Military Kit. Includes clear and sunglass lenses, head strap, frame, case and micro-fiber storage/cleaning mitt.	Regular	4240-01-527-4051
Revision Sawfly USA Military Kit. Includes clear and sunglass lenses, head strap, frame, case and micro-fiber storage/cleaning mitt.	Large	4240-01-527-4018
Clear lens with nosepiece (pack of 10)	Regular	4240-01-527-4052
Clear lens with nosepiece (pack of 10)	Large	4240-01-527-4061
Sunglass lens with nosepiece (pack of 10)	Regular	4240-01-527-4053
Sunglass lens with nosepiece (pack of 10)	Large	4240-01-527-4063
Head strap (pack of 10)	---	4240-01-527-4067
Prescription lens carrier with goggle connector (pack of 10)	---	6540-01-527-4056
Anti-fog, anti-static lens cleaning spray (pack of 10)	---	4240-01-527-4068

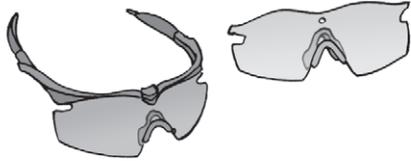
## Eye Safety Systems Interchangeable Component Eyeshield

Eye Safety Systems (ESS) Interchangeable Component Eyeshield (ICE) comes in two sizes: ESS ICE 2 is the regular size; ESS ICE NARO is the small size. An optional PLC that holds prescription lenses fits both sizes. This eyewear can be worn both by soldiers who need prescription eyeglasses and by those who don't. The eyewear also have adjustable temples and a head strap.

Item	NSN
ESS ICE 2 Kit. Includes clear and gray lenses, fog-repellent cloth, head strap and micro-fiber case.	4240-01-525-5085
ESS ICE NARO Kit. Includes clear and gray lenses, fog-repellent cloth, head strap and micro-fiber case.	4240-01-537-6143
ESS ICE 2 clear lens (pack of 50)	4240-01-525-4819
ESS ICE 2 gray lens (pack of 50)	4240-01-525-5098
ESS ICE 2 frame. Includes temples, nosepiece and head strap.	4240-01-525-5095
ESS ICE NARO clear lens (pack of 50)	4240-01-549-0863
ESS ICE NARO gray lens (pack of 50)	4240-01-549-0876
ESS ICE NARO frame. Includes temples, nosepiece and head strap.	4240-01-549-0934
Micro-fiber case	4240-01-518-9838
Fog-repellent cloth (pack of 24)	4240-01-525-5107
Head strap (pack of 24)	4240-01-525-4777
Prescription lens carrier	6540-01-525-4784

### Oakley M Frame 2.0

Only soldiers who do not need to wear prescription eyeglasses should order the Oakley M Frame 2.0. A wrap-around frame and lens provide added protection. One size fits all.



Item	NSN 4240-01-525-
Oakley M Frame 2.0 Kit. Includes clear and gray lenses, frame and case.	3095
Clear lens	7555
Gray lens	7554
Case	7561
Storage/cleaning bag (pack of 5)	3109



Uvex Genesis Spectacles

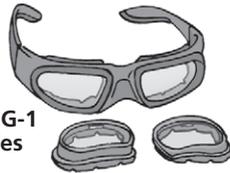
ESS Land Operations Goggles



Wiley-X PT-1 Spectacles



Wiley-X SG-1 Spectacles



### Uvex Genesis Spectacles

Uvex Genesis spectacles can be worn by soldiers who need prescription eyeglasses and by those who don't. An optional PLC for prescription lenses is available. It's the same one used for the Uvex XC spectacles. The wrap-around frame and lens protect the eyes and provide greater peripheral vision. The spectacles come in a one-size-fits-all frame. The Uvex Genesis fits smaller faces better than the Uvex XC.

Item	NSN
Uvex Genesis Spectacle Kit. Includes clear and gray lenses, frame, head strap, case and cleaning cloth.	4240-01-552-4131
Uvex Genesis Spectacle Clear Assembly. Includes frame and clear lens.	4240-01-552-4142
Uvex Genesis Spectacle Gray Assembly. Includes frame and gray lens.	4240-01-552-4148
Clear lens (pack of 10)	4240-01-552-4178
Gray lens (pack of 10)	4240-01-552-4181
Carrying case	4240-01-516-3444
Prescription lens carrier	6540-01-516-5342

### Wiley-X PT-1 Spectacles

Wiley-X PT-1 spectacles should be worn only by soldiers who don't need to wear eyeglasses. A wrap-around frame and lens protect the entire eye socket. The frame comes with an adjustable rubber nose piece. One size fits all.

Item	NSN 4240-01-
Wiley X PT-1 Spectacles Kit. Includes clear and gray lenses, frame, head strap and case.	510-7853
Wiley X PT-1 Single Lens System. Includes frame and clear lens.	510-7848
Wiley X PT-1 Single Lens System. Includes frame and gray lens.	510-7847
Clear lens (pack of 50)	528-5900
Gray lens (pack of 50)	528-5901
Case	528-5902

### Wiley-X SG-1 Spectacles

Only soldiers who don't need eyeglasses should wear these spectacles. A foam seal around each eye prevents dust and wind from getting in. You can detach the temples and replace them with an elastic head strap. One size fits all.

Item	NSN 4240-01-504-
Wiley-X SG-1 Spectacle Kit. Includes clear and green smoke lenses, frame, head strap, temples and case.	0994
Clear lenses	5326
Green smoke lenses	5312
Temples	6474
Head strap	5754
Frame. Includes temples and head strap.	6524
Case	5797

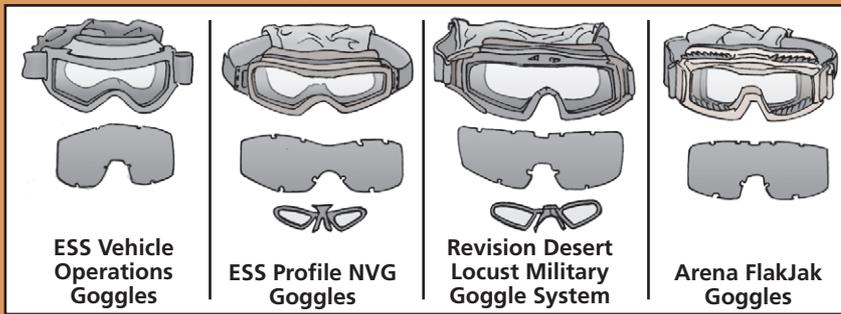
### ESS Land Operations Goggles

These goggles can be worn both by soldiers who need prescription eyeglasses and by those who don't. The ESS land operations goggles will fit over most eyeglasses.

Foam backing on the rubber frame helps the goggles fit snugly against your face. Foam-covered vent holes allow ventilation while keeping dust out. The kit comes with an anti-reflective sleeve that reduces glint when the goggles are not in use. One size fits all.

Item	NSN 4240-01-
Land Operations Goggles Kit (foliage green). Includes clear and gray lenses, frame, strap and case.	540-5576
Land Operations Goggles Kit (desert tan). Includes clear and gray lenses, frame, strap and case.	540-5580
Smoke gray lens (pack of 50)	492-5725
Clear lens (pack of 50)	492-5722





### ESS Vehicle Operations Goggles

These goggles can be worn both by soldiers who need prescription eyeglasses and by those who don't. The ESS Vehicle Operations goggles will fit over most eyeglasses.

The goggles protect soldiers against high wind and dust while operating vehicles. The kit comes with an anti-reflective sleeve that reduces glint when the goggles are not in use.

One size fits all.

Item	NSN 4240-01-
Vehicle Operations Goggles Kit (black). Includes clear and gray lenses, frame, strap and case.	525-5101
Smoke gray lens (pack of 50)	492-5725
Clear lens (pack of 50)	492-5722

### ESS Profile NVG Goggles

These goggles can be worn both by soldiers who need prescription eyeglasses and by those who don't. An optional PLC for prescription lenses is available. It's the same one that fits the ESS ICE 2 and the ESS ICE NARO spectacles.

The rubber frame fits snugly against your face. Foam-covered vent holes allow ventilation while keeping dust out.

The kit comes with an anti-reflective sleeve that reduces glint when the goggles are not in use. You can order the kit in one of three frame colors: black, desert tan or foliage green. One size fits all.

Item	NSN
Profile NVG Goggles Kit (black). Includes clear and gray lenses, frame, head strap and case.	4240-01-504-6222
Profile NVG Goggles Kit (desert tan). Includes clear and gray lenses, frame, head strap and case.	4240-01-504-5727
Profile NVG Goggles Kit (foliage green). Includes clear and gray lenses, frame, head strap and case.	4240-01-540-5585
Smoke gray lens (pack of 50)	4240-01-504-6143
Clear lens (pack of 50)	4240-01-504-5641
Prescription lens carrier	6540-01-525-4784

### Revision Desert Locust Military Goggle System

Revision Desert Locust goggles can be worn both by soldiers who need prescription eyeglasses and by those who don't. An optional PLC for prescription lenses is available. It's the same one used for the Revision Sawfly USA Military Eyewear spectacles.

The kit comes with an anti-reflective sleeve that reduces glint when the goggles are not in use. A ventilated rubber frame aids in cooling. One size fits all.

Item	NSN
Revision Desert Locust Goggles Kit (foliage green). Includes clear and sunglass lenses, frame, head strap, case and micro-fiber cleaning mitt.	4240-01-547-6218
Revision Desert Locust Goggles Kit (black). Includes clear and sunglass lenses, frame, head strap, case and micro-fiber cleaning mitt.	4240-01-547-6227
Clear lens (pack of 10)	4240-01-547-6568
Sunglass lens (pack of 10)	4240-01-547-6567
Prescription lens carrier with goggle connector	6540-01-527-4056

### Arena FlakJak Goggles

Wear Arena FlakJak goggles only if you don't need to wear eyeglasses. The kit comes with a micro-fiber storage pouch and an anti-reflective sleeve that reduces glint when the goggles are not in use. A ventilated rubber frame aids in cooling. One size fits all.

Item	NSN 4240-01-
FlakJak Arena Goggles Kit (foliage green). Includes clear and smoke gray lenses, frame, head strap, storage pouch and cleaning cloth.	548-7366
FlakJak Arena Goggles Kit (tan). Includes clear and smoke gray lenses, frame, head strap, storage pouch and cleaning cloth.	527-4076
Clear lens (pack of 50)	527-4079
Smoke gray lens (pack of 50)	527-4082
Tan micro-fiber storage pouch	527-4078
Tan head strap	527-4085

Get prescription lenses for combat eyewear through your post optometry clinic or medical support personnel. They know about the new commercial products and issuing procedures.

For more information on APEL combat eyewear, visit these PEO Soldier web pages:

<https://peosoldier.army.mil/pmseq/eyewearmessage.asp>  
<https://peosoldier.army.mil/pmseq/eyewear.asp>  
<https://peosoldier.army.mil/docs/EyewearAPELMemo.pdf>



# Ordering Army Publications



**T**he Army Publishing Directorate is no longer the source for Army units ordering Army publications and forms.

The Army's Office of the Administrative Assistant through its Directorate of Logistics (DOL) has taken over the task. The new website for the DOL's Publishing Products Index and Ordering System is: <https://dol.hqda.pentagon.mil/ptclick/index.aspx>

Units must have an account with DOL to use the index and ordering system. If you have an account, login AND verify that your account info is correct. If you don't have an account, click on Registration, scroll to DA Form 12-R, fill it in and send it as an email attachment to: [dolwcustsrv@conus.army.mil](mailto:dolwcustsrv@conus.army.mil)

The website provides two options for finding publications: SEARCH and CATEGORY BROWSE.

Under SEARCH you can use the publication/form number, title, IDN or PIN to get the ordering page for that publication.

Under CATEGORY BROWSE you can scroll down the list of titles and categories to find what you need. If you need an Army regulation, scroll down to "AR" and expand the selection. Then scroll down the list of regulations and click on what you need. You'll get an ordering page for that publication.

Click on Help for guidance on using the new website. Click on Login or Reports and you go to a logon screen. At the bottom of the screen are a tutorial on filling out the DA Form 12-R and instructions on how to establish an account.

So, pub clerks, take a look at this website—your jobs just got a little easier!

# Ordering PS Magazine



**W**e often get asked how to order PS Magazine.

Here's the best (and only) way to get a subscription to *PS, The Preventive Maintenance Monthly* (aka: TB 43-PS-[series]).

Go to the Directorate of Logistics website (Office of the Administrative Assistant) for the Publishing Products Index and Ordering System:

<https://dol.hqda.pentagon.mil/ptclick/index.aspx>

You can use the **Search** or the **Category Browse** options to find the PS Magazine listing.

- **Search** for PS Magazine.
- **Category Browse**, scroll down the list of Army publications and forms to *PS Magazine*.

## Ordering PS Magazine

Don't search for TB 43-PS-[series]. That listing only gives you choices to "Re-Supply" or get "All Changes". However, *PS Magazine* is not stocked for re-supply by the Army Publishing Directorate, and *PS* issues never receive changes. So looking up TB 43-PS-[series] won't do you any good.

By using *PS Magazine* as your search or browse term you'll be able to place a subscription and get the quantity you request.

Here are the essential points:

- Your publications clerk is the only person in your unit who can add, modify or delete subscriptions to any Army publication through the OSS DOL website.
- When you need to order or modify your subscription to *PS Magazine*:
  - Use references to "PS Magazine"
  - Be sure to indicate the quantity your unit needs. Entering a zero will delete the subscription.

Munitions...

# Little Yellow Book: A Guide to Explosives (since 1974)



NOW WHAT WAS  
THE HAZARD  
CLASSIFICATION  
ON THOSE  
EXPLOSIVES?



GOT A QUESTION ABOUT THE  
HAZARD CLASSIFICATION OF  
MUNITIONS?

THEN LET YOUR  
FINGERS FLIP  
THE PAGES OF  
THIS HANDY  
GUIDE!

**T**he Little Yellow Book on the “Hazard Classification of United States Military Explosives and Munitions” is available from the U.S. Army Defense Ammunition Center (DAC).

The *Yellow Book* is only a **guide** and is intended to help soldiers in the field who don’t have ready access to official sources of information.

It is available on the DAC website: <https://www3.dac.army.mil>

Once you’re on the website, go to the left-hand column under **Available Products** and select **HC “Yellow Book”**.

It is also available on the AKO website:

<https://www.us.army.mil/suite/page/431355>

Two versions of the *Yellow Book* appear at each site.

One version provides access to each individual section of the book, with the exception of the DODIC listing of ammunition and explosives. The DODIC list is a hot button to the Joint Hazard Classification System (JHCS) (login and password required) for real-time hazard classification information.

The second version is a copy of the “as printed” *Yellow Book*.

The *Yellow Book* is also available in hard copy, at no cost. Requests need to include the **quantity** needed and a **complete** military/unit mailing address. Send hard copy requests via email: [MCAL.DAC.YellowBook@conus.army.mil](mailto:MCAL.DAC.YellowBook@conus.army.mil)

CONNIE'S



POST SCRIPTS

## NEW M240B AMMO POUCH

A new ammo pouch for the M240B machine gun is being distributed to units through the rapid fielding initiative (RFI). The pouch attaches to the M240B's feed side and holds a starter belt of 50 rounds. The pouch's collar assembly opens so that the assistant gunner can quickly and easily link additional ammo belts without having to open the feed tray. The pouch can be ordered with NSN 1005-01-529-8411.

## SHOTGUN BREACHING CARTRIDGE AVAILABLE

A 12-gauge shotgun cartridge is now available that is designed specifically to breach padlock hasps and deadbolts, knobs and hinges on wooden doors. The M1030 cartridge, NSN 1030-01-475-7440, can be used with both the Mossberg 500/590 and Remington 870 shotguns. Its DODIC is AA54. It has a brown tip and the cartridge is stamped "12GA, BREACHING, M1030". The cartridge minimizes the ricochet hazards of breaching operations, but soldiers should still wear ESS land ops goggles when firing M1030s. NSN 4240-01-540-5576 brings green goggles and NSN 4240-01-540-5580 brings the desert tan version.

## AOAP Helps Prevent Failures

The Army Oil Analysis Program (AOAP) is here to help the Warfighter. Oil analysis on your equipment can mean the difference between an operational weapon system or one that fails. Oil analysis tests determine the condition of engines, gearboxes, and transmissions for selected Army equipment. AOAP decreases maintenance support costs and improves readiness while enhancing safety by reducing the number of non-mission capable end items. For more AOAP information, go to the Logistics Information Warehouse (LIW): <https://liw.logsa.army.mil>

You can contact AOAP at (256) 955-0869, DSN 645-0869 or by email:

[logsa.aop@conus.army.mil](mailto:logsa.aop@conus.army.mil)

## M1-SERIES TANK RECOIL STENCILING STOPPED

Para 2-2a(4) of TB 9-1000-234-13, *Exercising of Recoil Mechanisms and Equilibrators* (Sep 93), says to stencil the date on the cannon tube after exercising your tank's recoil mechanism. That's no longer true. Instead, you should enter the information as non-firing data on the electronic DA Form 2408-4 at the AEPS website:

<https://aeps2.ria.army.mil/commodity/guncard/index.cfm>

Make a note until the TB is updated.

DISTRIBUTION: To be distributed in accordance with the initial distribution number (IDN) 340312, requirements for TB 43-PS-Series.

Would You Stake Your Life <sup>right now</sup> on  
the Condition of Your Equipment?

**THE MORE  
THINGS  
CHANGE...**



**...THE MORE  
THEY *STAY*  
*THE SAME!***



**BE CAREFUL  
WITH HAND TOOLS!**